

ELECTRONIC PIANO

P-200

SERVICE MANUAL



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IMPORTANT NOTICE

This manual has been provided for the use of authorized Yamaha Retailers and their service personnel. It has been assumed that basic service procedures inherent to the industry, and more specifically Yamaha Products, are already known and understood by the users, and have therefore not been restated.

WARNING: Failure to follow appropriate service and safety procedures when servicing this product may result in personal injury, destruction of expensive components and failure of the product to perform as specified. For these reasons, we advise all Yamaha product owners that all service required should be performed by an authorized Yamaha Retailer or the appointed service representative.

IMPORTANT: This presentation or sale of this manual to any individual or firm does not constitute authorization, certification, recognition of any applicable technical capabilities, or establish a principal-agent relationship of any form.

The data provided is believed to be accurate and applicable to the unit(s) indicated on the cover. The research engineering, and service departments of Yamaha are continually striving to improve Yamaha products. Modifications are, therefore, inevitable and changes in specification are subject to change without notice or obligation to retrofit. Should any discrepancy appear to exist, please contact the distributor's Service Division.

WARNING: Static discharges can destroy expensive components. Discharge any static electricity you body may have accumulated by grounding yourself to the ground buss in the unit (heavy gauge black wires connect to this buss.)

IMPORTANT: Turn the unit OFF during disassembly and parts replacement. Recheck all work before you apply power to the unit.

LITHIUM BATTERY HANDLING

This product uses a lithium battery for memory back-up.

WARNING: Lithium batteries are dangerous because they can be exploded by improper handling. Observe the following precautions when handling or replacing lithium batteries.

- Leave lithium battery replacement to qualified service personnel.
- Always replace with batteries of the same type.
- When installing on the PC board by soldering, solder using the connection terminals provided on the battery cells.
- Never solder directly to the cells. Perform the soldering as quickly as possible.
- Never reverse the battery polarities when installing.
- Do not short the batteries.
- Do not attempt to recharge these batteries.
- Do not disassemble the batteries.
- Never heat batteries or throw them into fire.

ADVARSEL!

Lithiumbatteri-Eksplosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Levér det brugte batteri tilbage til leverandøren.

VARNING

Explosionsfara vid felaktigt batteribyte.

Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren.

Kassera använt batteri enligt fabrikantens instruktion.

VAROITUS

Paristo voi räjähtää, jos se on virheellisesti asennettu.

Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin.

Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

The following information complies with Dutch Official Gazette 1995. 45; ESSENTIALS OF ORDER ON THE COLLECTION OF BATTERIES.

- Please refer to the disassembly procedure for the removal of Back-up Battery.
- Leest u voor het verwijderen van de backup batterij deze beschrijving.

WARNING: CHEMICAL CONTENT NOTICE!


The solder used in the production of this product contains LEAD. In addition, other electrical/electronic and/or plastic (where applicable) components may also contain traces of chemicals found by the California Health and Welfare Agency (and possibly other entities) to cause cancer and/or birth defects or other reproductive harm.

DO NOT PLACE SOLDER, ELECTRICAL/ELECTRONIC OR PLASTIC COMPONENTS IN YOUR MOUTH FOR ANY REASON WHAT SO EVER!

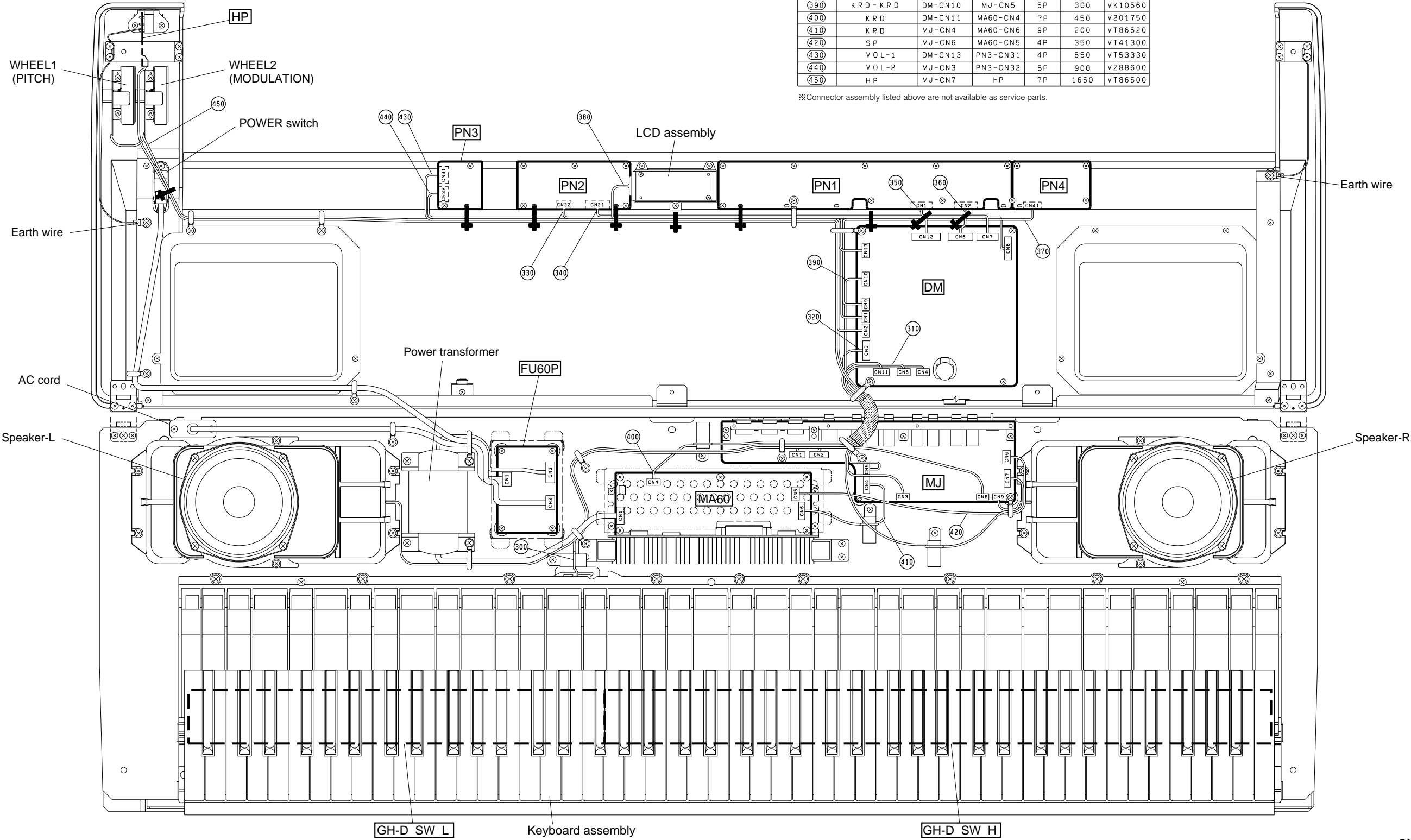
Avoid prolonged, unprotected contact between solder and your skin! When soldering, do not inhale solder fumes or expose eyes to solder/flux vapor!

If you come in contact with solder or components located inside the enclosure of this product, wash your hands before handling food.

■ WARNING

Components having special characteristics are marked  and must be replaced with parts having specification equal to those originally installed.

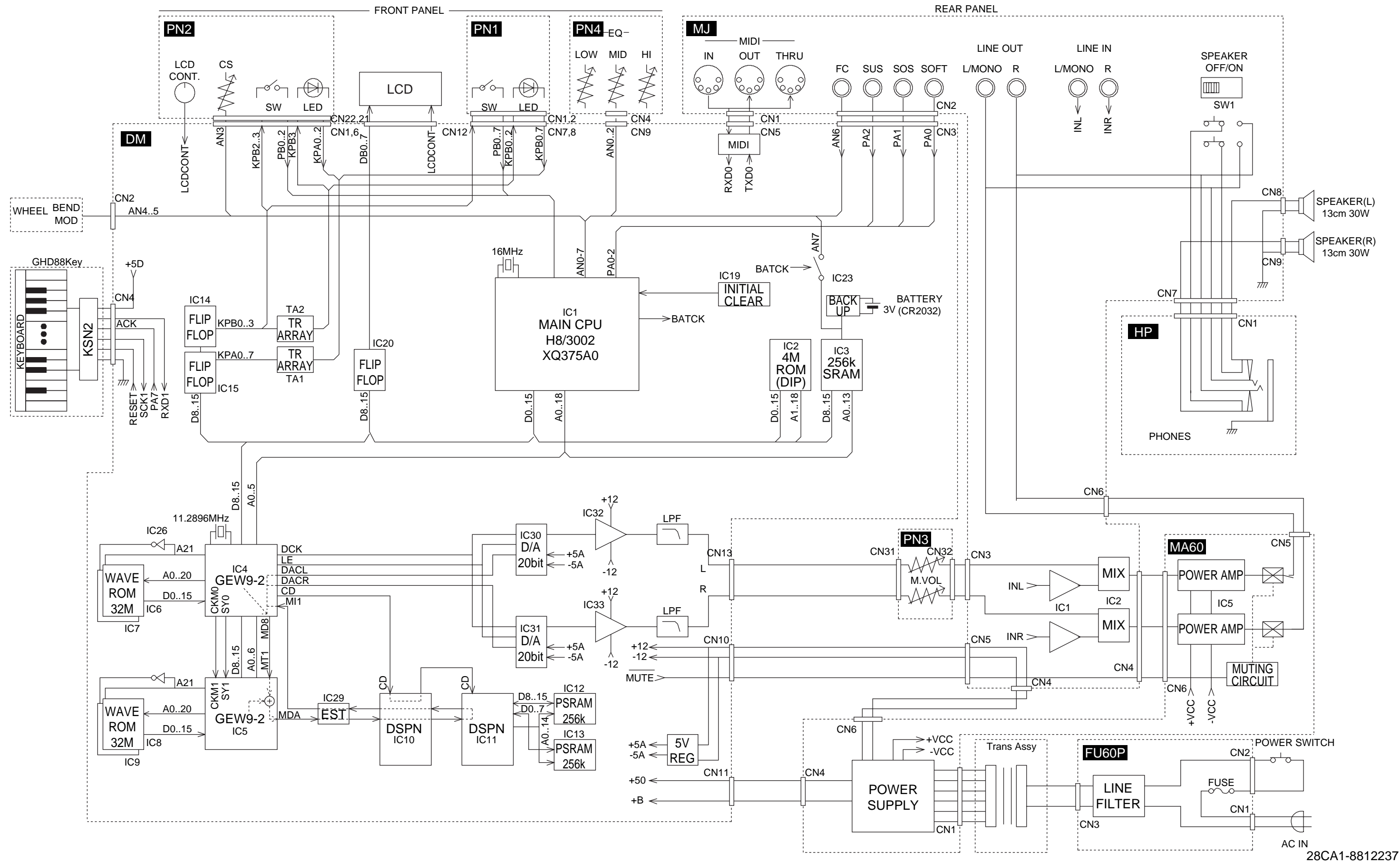
CIRCUIT BOARD LAYOUT



Location	Connector Assembly	Destination		Pin	L	Parts No.
300	GH	DM - CN 4	Keyboard	8P	1000	V223690
310	MJ	DM - CN5	MJ - CN1	9P - 8P	250	VZ88580
320	KRD - KRD	DM - CN3	MJ - CN2	10P	250	VJ98270
330	KRD - KRD	DM - CN1	PN2 - CN22	3P	450	VK11070
340	KRD - KRD	DM - CN6	PN2 - CN21	13P	500	VK11280
350	KRD - KRD	DM - CN7	PN1 - CN1	11P	100	VK09870
360	KRD - KRD	DM - CN8	PN1 - CN2	12P	100	VK09880
370	KRD - KRD	DM - CN9	PN4 - CN41	6P	300	VJ98120
380	KRD - KRD	DM - CN12	LCD	15P	450	VK11170
390	KRD - KRD	DM - CN10	MJ - CN5	5P	300	VK10560
400	KRD	DM - CN11	MA60 - CN4	7P	450	V201750
410	KRD	MJ - CN4	MA60 - CN6	9P	200	VT86520
420	SP	MJ - CN6	MA60 - CN5	4P	350	VT41300
430	VOL - 1	DM - CN13	PN3 - CN31	4P	550	VT53330
440	VOL - 2	MJ - CN3	PN3 - CN32	5P	900	VZ88600
450	HP	MJ - CN7	HP	7P	1650	VT86500

※Connector assembly listed above are not available as service parts.

BLOCK DIAGRAM



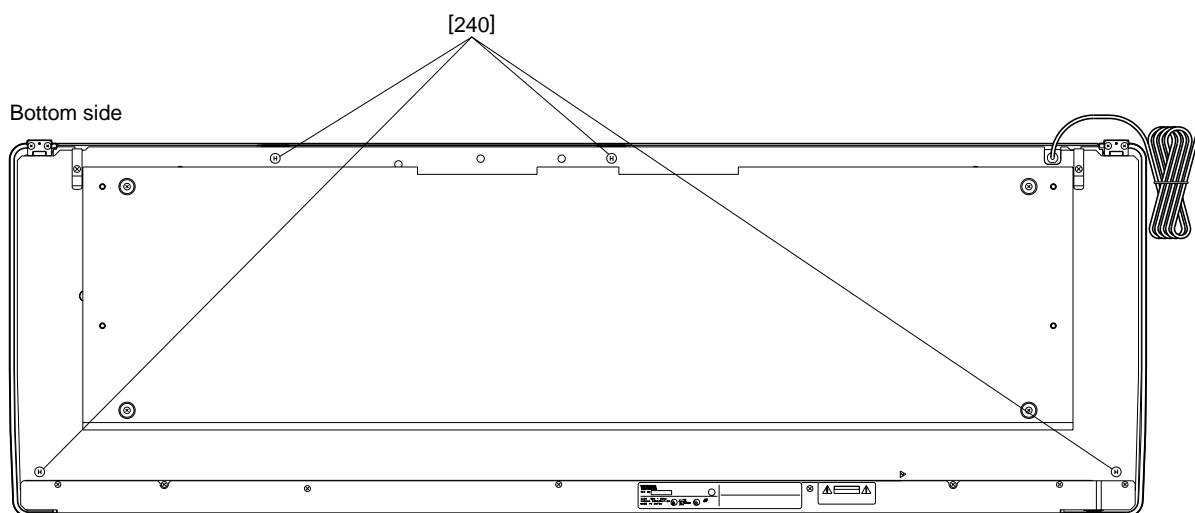
DISASSEMBLY PROCEDURE

1 Opening Control Panel Unit

Remove the four (4) screws marked [240] located under the keybed. (Fig. 1)

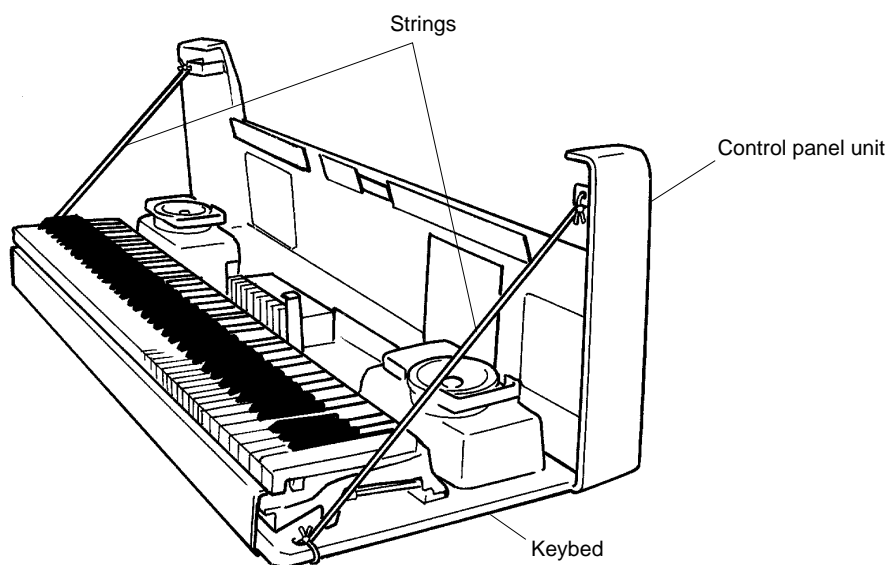
* Lift the control panel unit from the front and pass strings through two side plates and both ends of the keybed, as shown in the figure so that hinges are not damaged. (Fig. 2)

CAUTION: MAKE SURE THAT THE UPPER CASE IS SECURE.



[240]: Pan Head Screw PW 5.0 x 25 MFZN2BL(VB919400)

(Fig. 1)



(Fig. 2)

2 DM Circuit Board

- 2-1 Open the control panel unit. (see procedure 1)
- 2-2 Remove the four (4) screws marked [920A]. The DM circuit board can then be removed. (Fig. 3)
 - * Lithium battery is not a part of DM circuit board. When you replace the DM circuit board, remove the lithium battery and install it in the new circuit board.

3 PN1 Circuit Board

- 3-1 Open the control panel unit. (see procedure 1)
- 3-2 Remove the nine (9) screws marked [920B] and one(1) screw marked [920C]. The PN1 circuit board can then be removed. (Fig. 3)

4 PN2 Circuit Board

- 4-1 Open the control panel unit. (see procedure 1)
- 4-2 Remove the DATA ENTRY knob.
- 4-3 Remove the five (5) screws marked [920D]. The PN2 circuit board can then be removed. (Fig. 3)

5 PN3 Circuit Board

- 5-1 Open the control panel unit. (see procedure 1)
- 5-2 Remove the VOLUME knob.
- 5-3 Remove the two (2) screws marked [920E]. The PN3 circuit board can then be removed. (Fig. 3)

6 PN4 Circuit Board

- 6-1 Open the control panel unit. (see procedure 1)
- 6-2 Remove the three EQUALIZER knobs.
- 6-3 Remove the one(1) screw marked [920C] and three (3) screws marked [920F]. The PN4 circuit board can then be removed. (Fig. 3)

7 LCD Assembly

- 7-1 Open the control panel unit. (see procedure 1)
- 7-2 Remove the three (3) screws marked [920G]. The LCD assembly can then be removed. (Fig. 3)

8 MA60 assembly

- 8-1 Open the control panel unit. (see procedure 1)
- 8-2 For U.S. model: Before removing the MA60 assembly, it is necessary to remove the MA cover by removing the four (4) screws marked [170A]. (Fig. 3)
- 8-3 Remove the four (4) screws marked [170B]. The MA60 assembly can then be removed. (Fig. 3)

9 FU60P Circuit Board

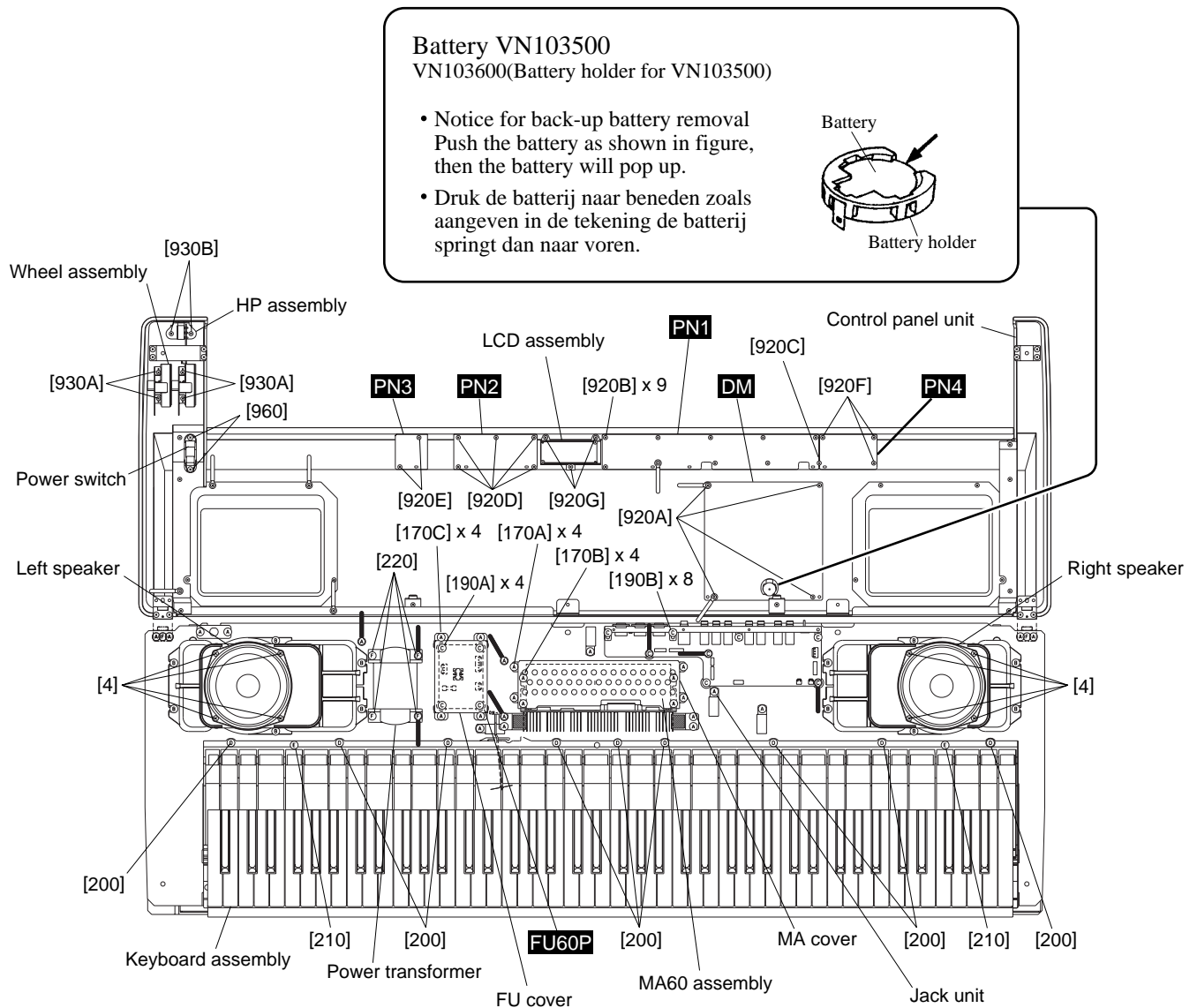
- 9-1 Open the control panel unit. (see procedure 1)
- 9-2 For U.S. model: Before removing the FU60P circuit board, it is necessary to remove the FU cover by removing the four (4) screws marked [170C]. (Fig. 3)
- 9-3 Remove the four (4) screws marked [190A]. The FU60P Circuit Board can then be removed. (Fig. 3)

10 Power Transformer

- 10-1 Open the control panel unit. (see procedure 1)
 10-2 Remove the four (4) screws marked [220]. The power transformer can then be removed. (Fig. 3)

11 Speakers

- 11-1 Open the control panel unit. (see procedure 1)
 11-2 Remove the four (4) screws marked [4]. The speaker can then be removed. (Fig. 3)
 * The right and left speakers can be removed in the same manner.



- [4]: Bind Head Tapping Screw-P 4.0 x 30 MFZN2Y (VZ893400)
 [170]: Bind Head Tapping Screw-1 3.5 x 12 MFZN2BL (EP030340)
 [190]: Bind Head Screw 3.0 x 8 MFZN2Y (VD976600)
 [220]: Bind Head Screw 4.0 x 12 MFZN2Y (EG340030)
 [920A-G]: Bind Head Tapping Screw-B 3.0 x 6 MFZN2Y (EP600130)
 [930]: Bind Head Tapping Screw-B 3.0 x 8 MFZN2BL (EP600190)
 [960]: Bind Head Tapping Screw-B 4.0 x 8 MFZN2Y (EP640410)

(Fig. 3)

12 Wheel Assembly

- 12-1 Open the control panel unit. (see procedure 1)
- 12-2 Remove the four (4) screws marked [930A]. The wheel assembly can then be removed. (Fig. 3)

13 Power Switch

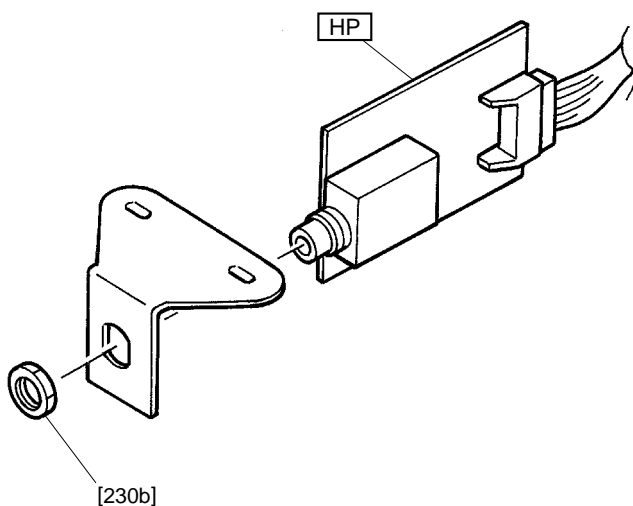
- 13-1 Open the control panel unit. (see procedure 1)
- 13-2 Remove the two (2) screws marked [960]. The power switch can then be removed. (Fig. 3)
- 13-3 Remove the push knob from the power switch.

14 HP Circuit Board

- 14-1 Open the control panel unit. (see procedure 1)
- 14-2 Remove the two (2) screws marked [930B]. The HP assembly can then be removed. (Fig. 3)
- 14-3 Remove the nut marked [230b] and remove the holder from the HP circuit board. (Fig. 4)

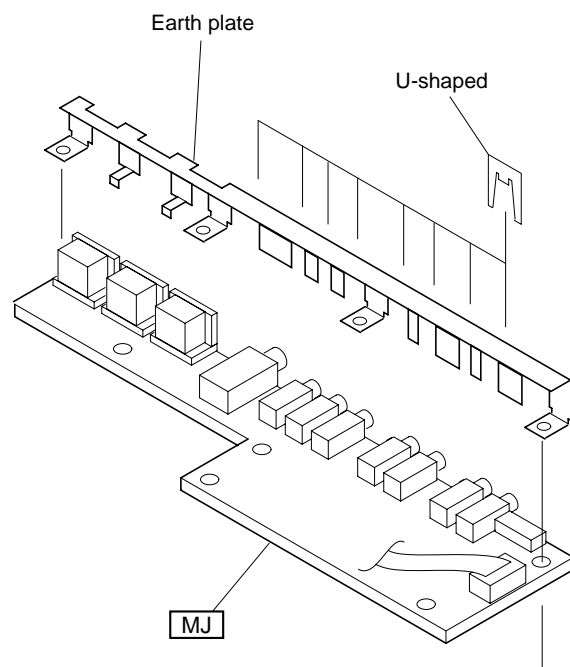
15 MJ Circuit Board

- 15-1 Open the control panel unit. (see procedure 1)
- 15-2 Remove the eight (8) screws marked [190B]. The JACK unit can then be removed. (Fig. 3)
- 15-3 Remove the eight (8) U-shaped holders and remove the earth plate from the MJ circuit board. (Fig. 5)



[230b]: Hexagonal Nut 12 x 14 x 2 MFZN2BL (VB508600)

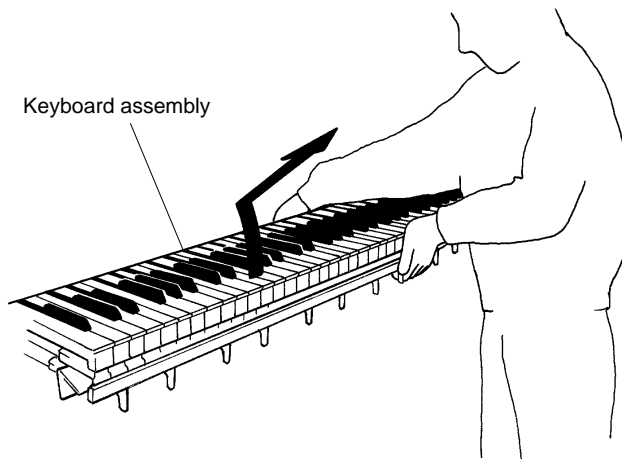
(Fig. 4)



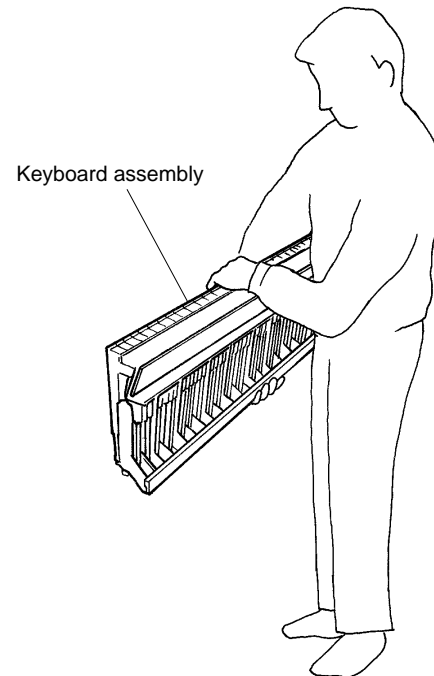
(Fig. 5)

16 Keyboard Assembly

- 16-1 Open the control panel unit. (see procedure 1)
- 16-2 Remove the nine (9) screws marked [200] and two (2) screws marked [210]. The keyboard assembly can then be removed. (Fig. 3)
- * When taking the keyboard assembly out of the main unit, slide it backward and hold it in the middle. Lift the keyboard assembly from the front and take it out of the main unit as shown in the figures. (Fig. 6 and Fig. 7)
 - * Do not hold the keyboard by the ends.



(Fig. 6)



(Fig. 7)

17 Disassembling the Keyboard

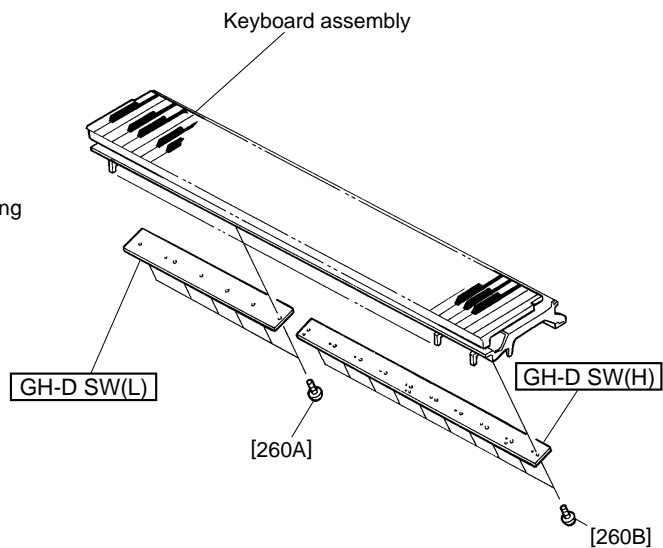
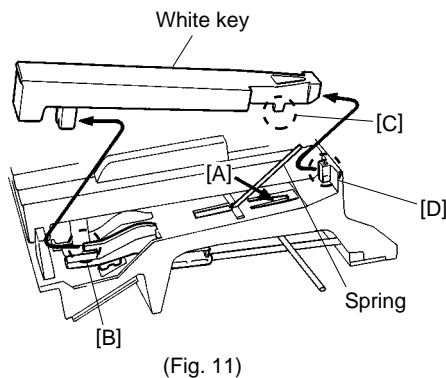
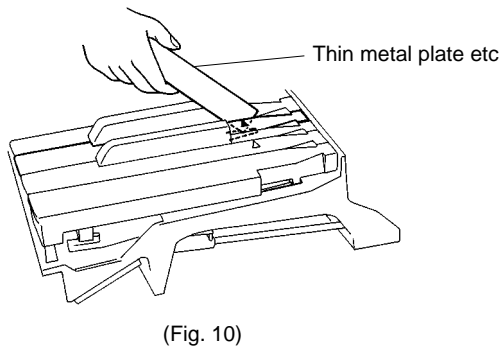
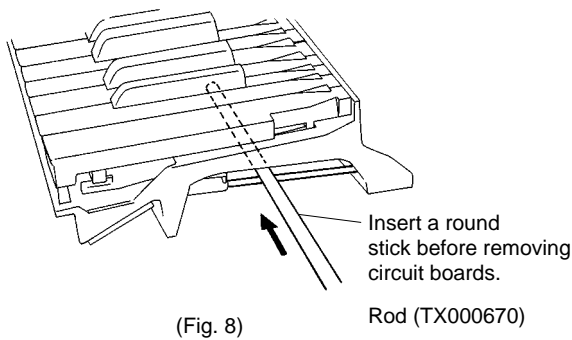
- * After inserting a round stick (Rod:TX000670) between the frame and keys, remove the circuit boards. (Fig. 8)
- 17-A Take the keyboard assembly out of the main unit. (see procedure 16)
- 17-B Remove the GH-D SW (L) circuit board by removing the seven (7) screws marked [260A]. (Fig. 9)
- 17-C Remove the GH-D SW (H) circuit board by removing the ten (10) screws marked [260B]. (Fig. 9)
- * Keys can be removed without removing the circuit boards.
 - * After removing the GH-D SW (L) and GH-D SW (H) circuit boards, and the rubbers can then be removed.

17-D Insert a thin plate between the white keys, near the triangle mark around the fulcrum of the key, and press down the stopper marked [A] to remove the key. (Fig. 8, Fig. 10 and Fig. 11)

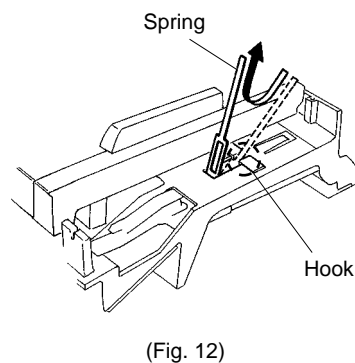
* Take care not to damage the key spring when removing a key.

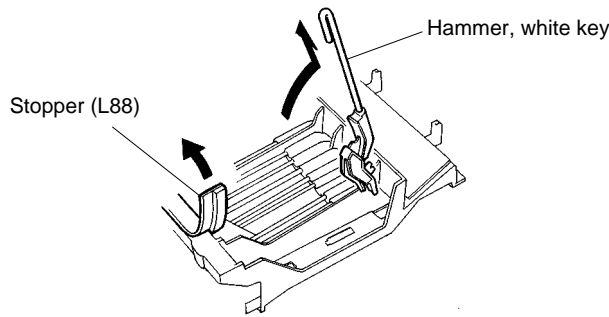
* A black key can be removed after the white keys on either side have been removed.

17-E After a key has been removed, push a key spring down once to take it out of the hook. (Fig. 12)
Place the keyboard assembly upside-down and peel the stopper away. Then hammer of the white key can then be removed. (Fig. 13)



[260]: Bind Head Tapping Screw-P 3.0 x 10 MFZN2Y (VT413400)





(Fig. 13)

18 Assembling the Keybed

18-A Place the keyboard assembly upside-down, insert a hammer assembly into the frame, and put the stopper on. (Fig. 14)

* There are four (4) weights of hammers.

18-B Place the keyboard assembly rightside up. Fix key springs on the frame by setting one at each slit and pushing down once on each key? spring?. (Fig. 14 and Fig. 15)

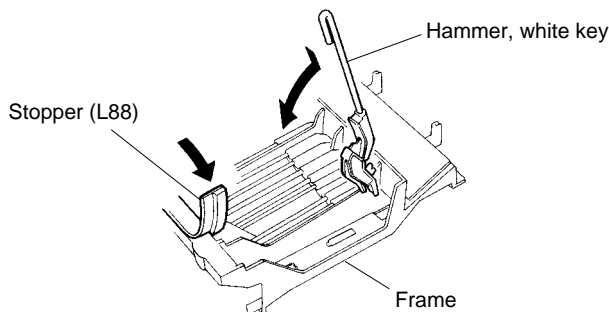
* Be careful of the direction of the spring.

18-C After a key has been fit to part [F] and key guide, make sure that the spring is fixed to the key and then press down part [E] of the key. (Fig. 16)

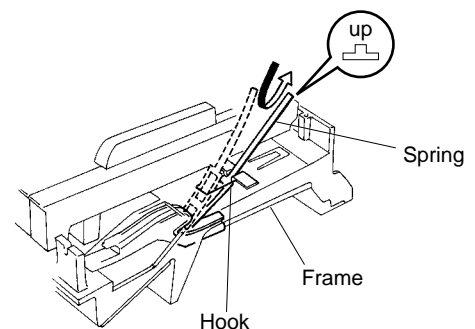
18-D Tighten the seven (7) screws marked [260A] to fix the GH-D SW (L) circuit board. (Fig. 9)

18-E Tighten the ten (10) screws marked [260B] to fix the GH-D SW (H) circuit board. (Fig. 9)

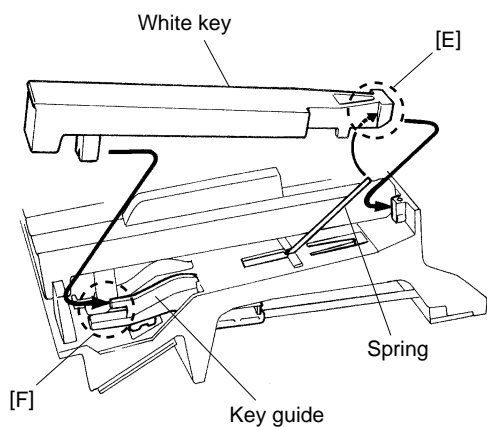
* Install the circuit boards in the keyboard assembly so that the hooks hold it as shown in figure 17.



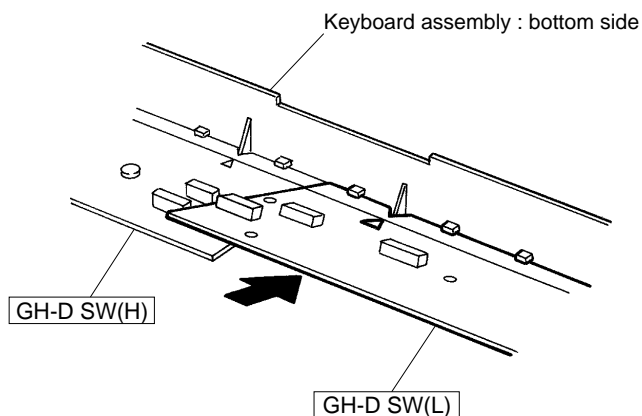
(Fig. 14)



(Fig. 15)



(Fig. 16)



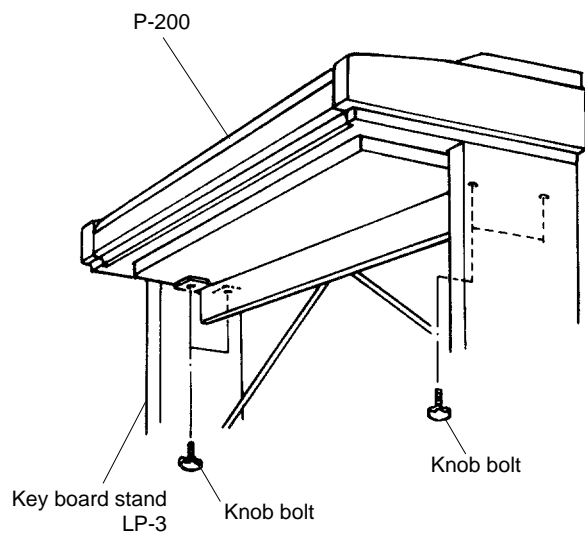
(Fig. 17)

19 Main Unit

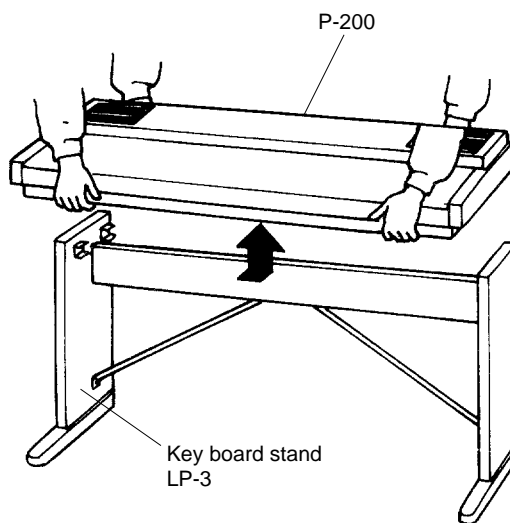
19-1 Remove the four (4) knob bolts. (Fig. 18)

19-2 Then, carefully lift the main unit up from the side boards and slide it toward the back. Next, raise it, taking care not to pinch your fingers. (Fig. 19)

CAUTION: WATCH YOUR FINGERS WHEN DOING THIS!!



(Fig. 18)



(Fig. 19)

LSI PIN DESCRIPTION

• HD6413002FP16 (XQ375A00) CPU <H8/3002>

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	PA6	O	Port A	51	A12	O	Address bus
2	PA7	O	Address bus	52	A13	O	
3	VCC		Power supply	53	A14	O	
4	PB0	I	Port B	54	A15	O	
5	PB1	I		55	A16	O	
6	PB2	I		56	A17	O	Ground
7	PB3	I		57	A18	O	
8	PB4	I		58	A19	O	
9	PB5	I		59	VSS		
10	PB6//DREQ0	I		60	P60//WAIT	I	Port 6
11	PB7//DREQ1	I		61	P61//BREQ	I	
12	/RESO	O	Reset	62	P62//BACK	I	
13	VSS		Ground	63	Ø	O	Øout
14	P90/TXD0	O	Transmit data (MIDI OUT)	64	/STBY	I	Stand-by mode signal
15	P91/TXD1	O	KSN-ACK	65	/RES	I	Reset
16	P92/RXD0	I	Receive data (MIDI IN)	66	NMI	I	Non-maskable interrupt
17	P93/RXD1	I	KSN-RX	67	VSS		Ground
18	P94/SCK0	O	Port 9	68	EXTAL	I	Clock
19	P95/SCK1	I	Port 9	69	XTAL	O	Clock
20	P40/D0	I/O	Data bus	70	VCC		Power supply
21	P41/D1	I/O		71	/AS	O	Address strobe
22	P42/D2	I/O		72	/RD	O	Read strobe
23	P43/D3	I/O		73	/HWR	O	Write strobe (High)
24	VSS		(Ground)	74	/LWR	O	Write strobe (Low)
25	P44/D4	I/O	Data bus	75	MD0	I	Mode select
26	P45/D5	I/O		76	MD1	I	
27	P46/D6	I/O		77	MD2	I	
28	P47/D7	I/O		78	AVCC		Analog power supply
29	D8	I/O		79	VREF	I	Reference voltage
30	D9	I/O	Power supply	80	P70/AN0	I	Analog data input (EQ)
31	D10	I/O		81	P71/AN1	I	Analog input (EQ)
32	D11	I/O		82	P72/AN2	I	Analog data input
33	D12	I/O		83	P73/AN3	I	Analog input (CS)
34	D13	I/O		84	P74/AN4	I	Analog data input (BEND)
35	D14	I/O	Power supply	85	P75/AN5	I	Analog input (MOD)
36	D15	I/O		86	P76/AN6	I	Analog input (FC)
37	VCC			87	P77/AN7	I	Analog input (BAT)
38	A0	O		88	AVSS		Analog ground
39	A1	O		89	P80	O	Port 8
40	A2	O	Address bus	90	P81//CS3	O	Chip select
41	A3	O		91	P82//CS2	O	
42	A4	O		92	P83//CS1	O	
43	A5	O		93	P84//CS0	O	Ground
44	A6	O		94	VSS		
45	A7	O	(Ground)	95	PA0	I	Port A
46	VSS			96	PA1	I	
47	A8	O		97	PA2	I	
48	A9	O		98	PA3	O	
49	A10	O		99	PA4	O	
50	A11	O		100	PA5	O	

• YMZ702-D (XR632A00) KSN2 (Key Scanner)

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	BK5	O	Key block (open drain)	21	GND		Ground
2	BK4	O		22	VDD		Power supply
3	BK3	O		23	SO	O	Serial data
4	BK2	O		24	ACK	I	Acknowledge/Mode select
5	BK1	O		25	XCK	I	Clock for serial data
6	BK0	O	1st make contact	26	/IC	I	Initial clear
7	MK15	I		27	TST1	I	Test mode (L, L: normal mode, others: test)
8	MK14	I		28	TST2	I	
9	MK13	I		29	XCKINH	I	
10	MK12	I		30	BK14	O	Key block (open drain)
11	MK11	I	2nd make contact	31	BK13	O	
12	MK10	I		32	BK12	O	
13	MK05	I		33	BK11	O	
14	MK04	I		34	BK10	O	
15	MK03	I	Crystal osc. input (4 MHz)	35	BK9	O	Ground
16	MK02	I		36	BK8	O	
17	MK01	I		37	BK7	O	
18	MK00	I		38	BK6	O	
19	XIN	I		39	GND		
20	XOUT	O	Crystal osc. output (4 MHz)	40	VDD		Power supply

● **YMW259** (XJ752C00) **GEW9-F** (AWM Tone Generator & Digital Filter)

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	Vss	I	Ground	65	Vss	I	Ground
2	A0	I	Address bus	66	MD11	I/O	External memory data bus
3	A1	I		67	MD12	I/O	
4	A2	I		68	MD13	I/O	
5	A3	I		69	MD14	I/O	
6	A4	I		70	MD15	I/O	
7	A5	I		71	/IC	I	Initial clear
8	D0	I/O	Data bus	72	SYI	I	Synch. pulse input
9	D1	I/O		73	SYO	O	Synch. pulse output
10	D2	I/O		74	CKMI	I	Clock 12.8 MHz input
11	D3	I/O		75	CKMO	O	Clock 12.8 MHz output
12	D4	I/O		76	V _{DD}		Power supply
13	D5	I/O		77	XOUT	O	Clock
14	D6	I/O		78	XIN	I	
15	D7	I/O	Ground	79	Vss		Ground
16	D8	I/O		80	RA0	O	not used
17	Vss		Ground	81	RA1	O	
18	D9	I/O		82	RA2	O	
19	D10	I/O		83	RA3	O	
20	D11	I/O	Data bus	84	RA4	O	
21	D12	I/O		85	RA5	O	
22	D13	I/O		86	RA6	O	
23	D14	I/O		87	RA7	O	
24	D15	I/O		88	RA8	O	
25	/IRQ	O	Interrupt request	89	RA9	O	not used
26	MA0	O	External memory address bus	90	RA10	O	
27	MA1	O		91	RA11	O	
28	MA2	O		92	RA12	O	
29	MA3	O		93	RA13	O	
30	MA4	O		94	RA14	O	
31	MA5	O		95	RD0	O	
32	MA6	O		96	RD1	O	
33	Vss		Ground	97	Vss		Ground
34	MA7	O	External memory address bus	98	RD2	O	not used
35	MA8	O		99	RD3	O	
36	MA9	O		100	RD4	O	
37	MA10	O		101	RD5	O	
38	MA11	O		102	RD6	O	not used
39	MA12	O		103	RD7	O	
40	MA13	O		104	/CE	O	
41	MA14	O		105	/OE	O	
42	MA15	O	Memory address enable	106	/WE	O	Write enable
43	MA16	O		107	TP1	I	Test pin
44	MA17	O		108	TP0	I	
45	MAE	I		109	DCK	O	DAC clock
46	V _{DD}		Power supply	110	LE	O	Latch enable
47	MA18	O	External memory address bus	111	MCK64	O	Clock 6.4 MHz output
48	MA19	O		112	MCK32	O	Clock 3.2 MHz output
49	MA20	O		113	MOA	O	MEL format data output
50	MA21	O		114	MOB	O	
51	MA22	O		115	MOC	O	Power supply
52	/MWR	O	Memory write control	116	V _{DD}		
53	BDIR	O	Data bus direction	117	MI1	I	MEL format data input
54	MD0	I/O	External memory data bus	118	MI2	I	
55	MD1	I/O		119	DRA	O	R-channel serial data output
56	MD2	I/O		120	DRB	O	
57	MD3	I/O		121	DLA	O	L-channel serial data output
58	MD4	I/O		122	DLB	O	
59	MD5	I/O		123	/CS	I	Chip select
60	MD6	I/O		124	/RD	I	Read control
61	MD7	I/O		125	/WR	I	Write control
62	MD8	I/O		126	8/16	I	Bus width 8 bit/16 bit
63	MD9	I/O		127	CDO	O	Control data output
64	MD10	I/O		128	A-1	I	Address bus

• **YSS208** (X1816A00) DSPN (Digital Signal Processor)

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	MDAT9	I/O	External RAM data bus	33	MAD8	O	External RAM address bus
2	MDAT8	I/O		34	MAD7	O	
3	MDAT7	I/O		35	MAD6	O	
4	MDAT6	I/O		36	MAD5	O	
5	MDAT5	I/O		37	MAD4	O	
6	MDAT4	I/O		38	MAD3	O	
7	MDAT3	I/O		39	MAD2	O	
8	MDAT2	I/O		40	MAD1	O	
9	MDAT1	I/O		41	MAD0	O	
10	Vss		(Ground)	42	Vss		Ground
11	MDAT0	I/O	Data input	43	/TSTR	I	Test R
12	SI1	I		44	/TST1	I	Test 1
13	SI0	I		45	CLKM	O	1/2 clock
14	SO1	O	Data output	46	SYW	I	Synch. signal input
15	SO0	O		47	CLK	I	Clock
16	XMD	I		48	/CE	O	External RAM chip enable
17	XCLK	I	ACIA clock	49	/IC	I	Initial clear
18	/TO	O	Timer output	50	MDTS4	O	MOD data test
19	/CRS	I	CDI reset	51	MDTS3	O	
20	CDO	O	Command output	52	MDTS2	O	
21	CDI	I	Command input	53	MDTS1	O	Wave add data input
22	TIM1	O	Timer 1	54	MDSI1	I	
23	/OE	I	Output enable	55	MDSIO	I	Wave add data input
24	R/W	O	Read/write	56	MDSO1	O	
25	MAD15	O	(Power supply)	57	MDSO0	O	Power supply
26	VDD			58	VDD		
27	MAD14	O		59	MDAT15	I/O	External RAM data bus
28	MAD13	O	External RAM address bus	60	MDAT14	I/O	
29	MAD12	O		61	MDAT13	I/O	
30	MAD11	O		62	MDAT12	I/O	
31	MAD10	O		63	MDAT11	I/O	
32	MAD9	O		64	MDAT10	I/O	

• **YM3422B** (XE862B00) ES1 (Format Converter)

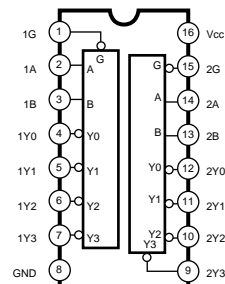
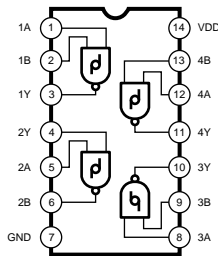
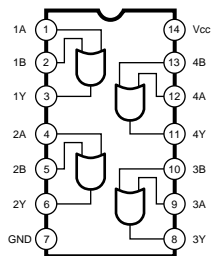
PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	Vss		Ground	9	M0	I	Mode select
2	SI0	I	Serial data input 0	10	M1	I	
3	SO0	O	Serial data output 0	11	M2	I	
4	BC0	I	Bit clock channel 0	12	M3	I	
5	WC0	I	Word clock channel 0	13	WC1	I	Word clock channel 1
6	SI2	I	Serial data input 2	14	BC1	I	Bit clock channel 1
7	SO2	O	Serial data output 2	15	SO1	O	Serial data output 1
8	Vdd		Power supply	16	SI1	I	Serial data input 1

• **PCM1702U** (XP551A00) DAC (Digital to Analog Converter)

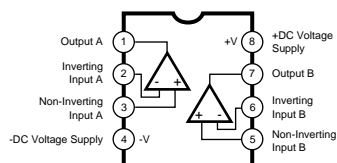
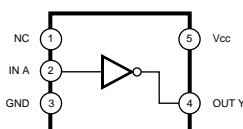
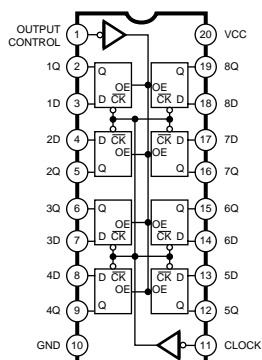
PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	DATA	I	Data input	11	+VCC		Power supply (+5 V)
2	CLK	I	Clock	12	BPO-DC	I/O	Bipolar de-couple
3	NC			13	NC		
4	+VDD		Power supply (+5 V) Digital	14	LOUT	O	Output current
5	D.COM		Digital ground	15	A.COM2		Analog ground
6	-VDD		Power supply (-5 V) Digital	16	A.COM1		Analog ground
7	L.E	I	Latch enable	17	SERVO-DC	I/O	Servo de-couple
8	NC			18	NC		
9	NC			19	REF-DC	I/O	Reference de-couple
10	NC			20	-VCC		Power supply (-5 V)

IC BLOCK DIAGRAM

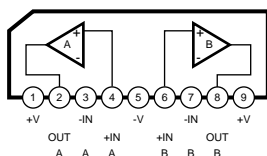
- **HD74AC32FPEL** (XK452A00)
Quad 2 Input OR
- **SN74HC132NSR** (XL112A00)
Quad 2 Input NAND
- **SN74HC139NSR** (XC727A00)
Dual 2 to 4 Demultiplexer



- **SN74HC374ANSR** (XQ042A00)
Octal 3-State D-FF
- **TC7S04F** (XM182A00)
Inverter Gate
- **μ PC4570G2** (XF291A00)
Dual Operational Amplifier

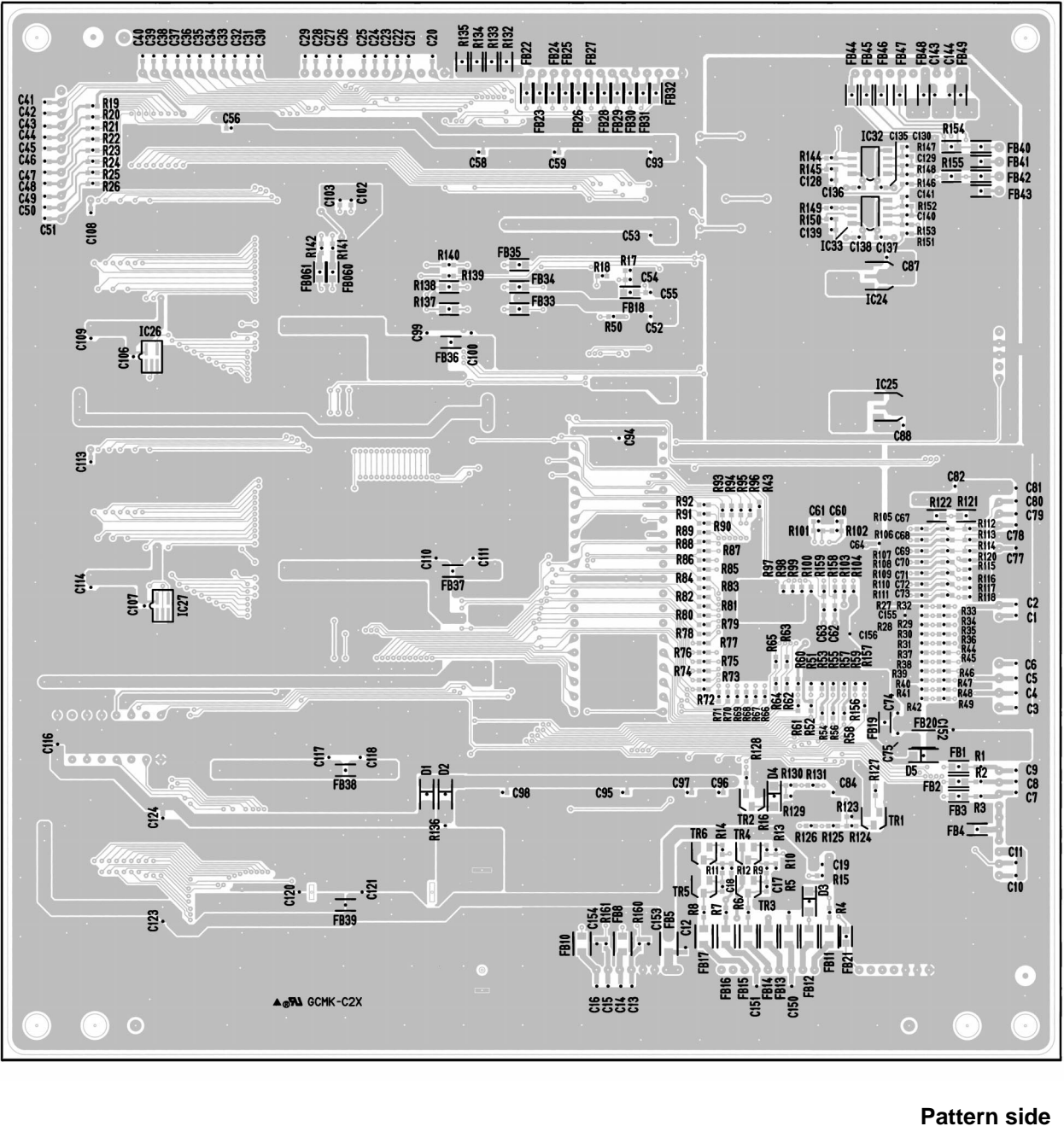
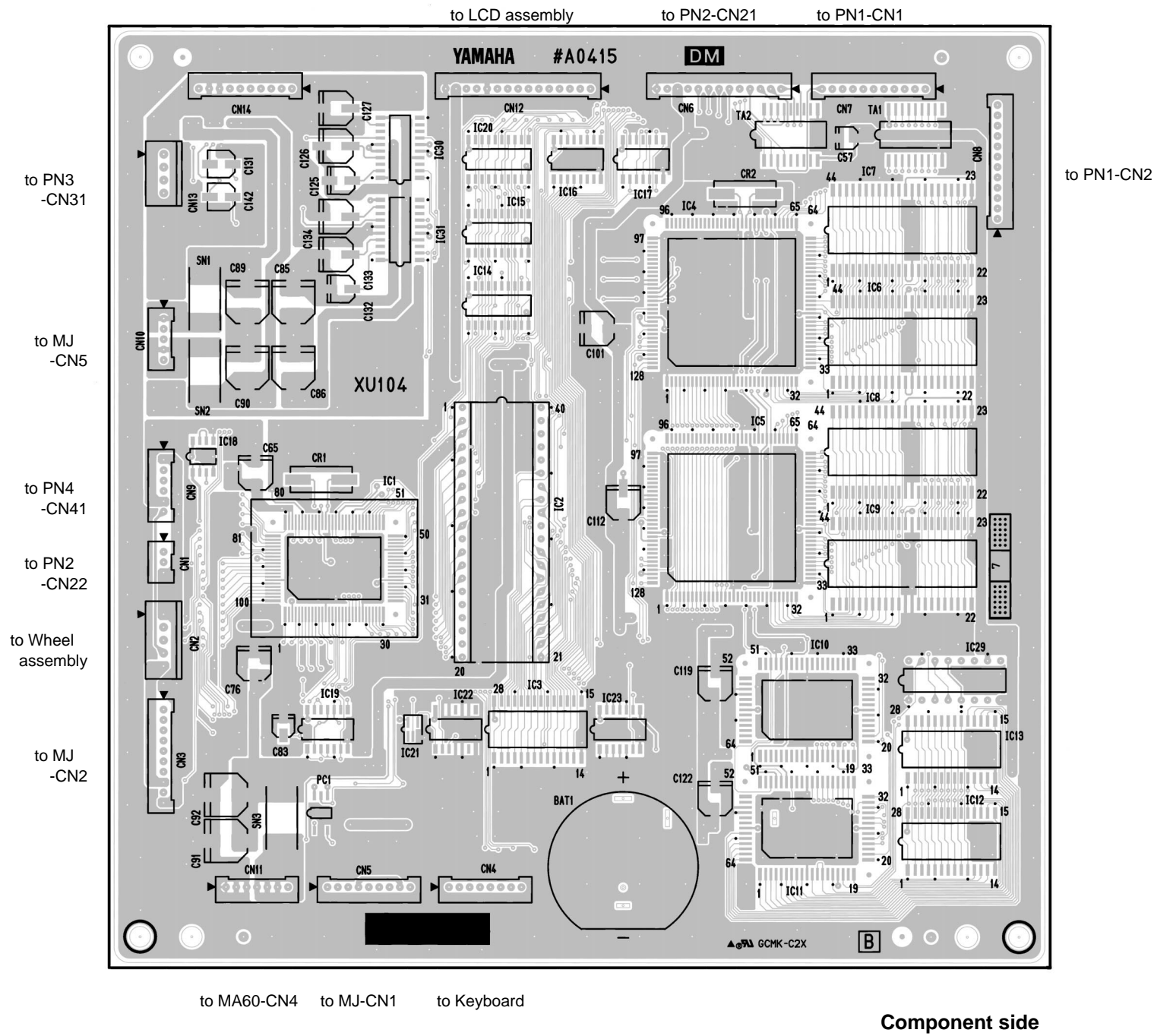


- **μ PC4570HA** (XB247A00)
Dual Operational Amplifier



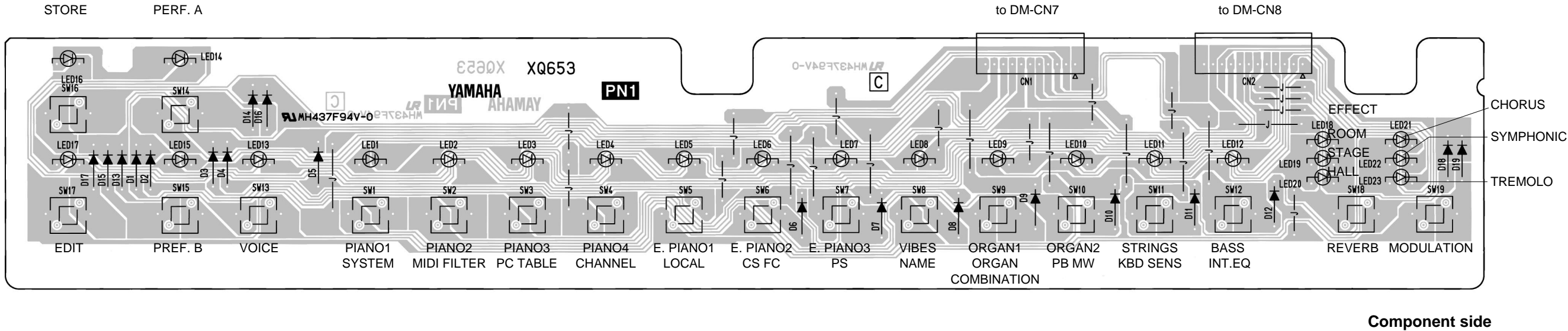
CIRCUIT BOARDS

- DM Circuit Board

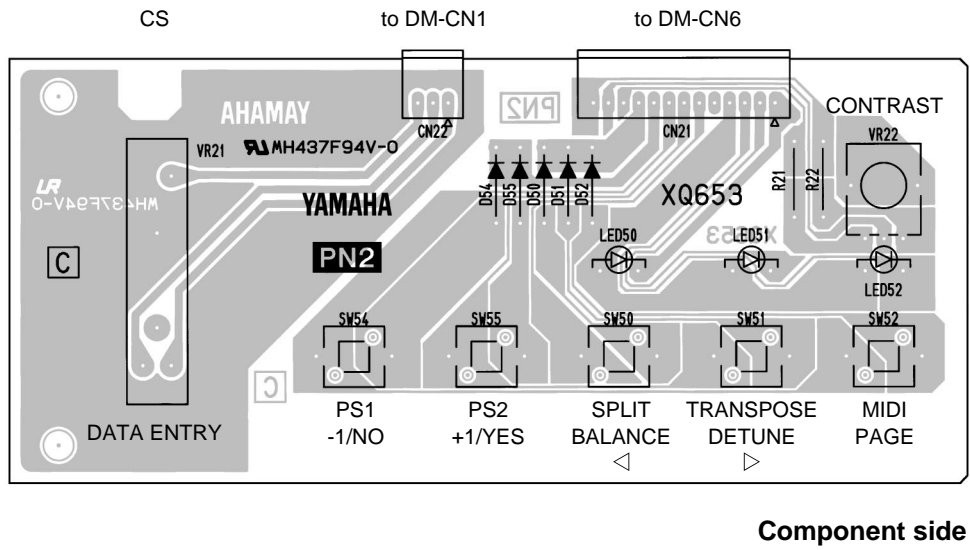


Note : See parts list for details of circuit board component parts.

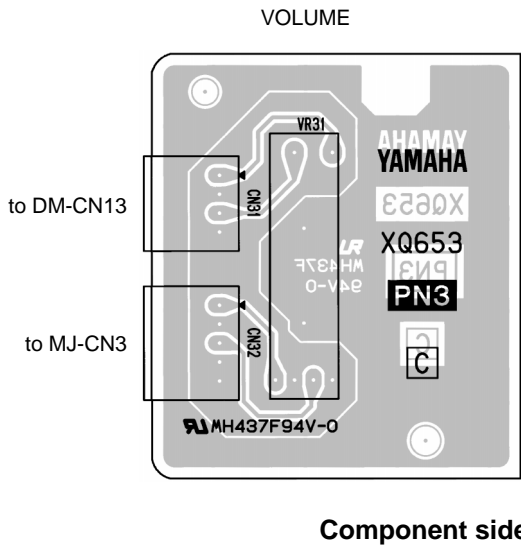
● PN1 Circuit Board



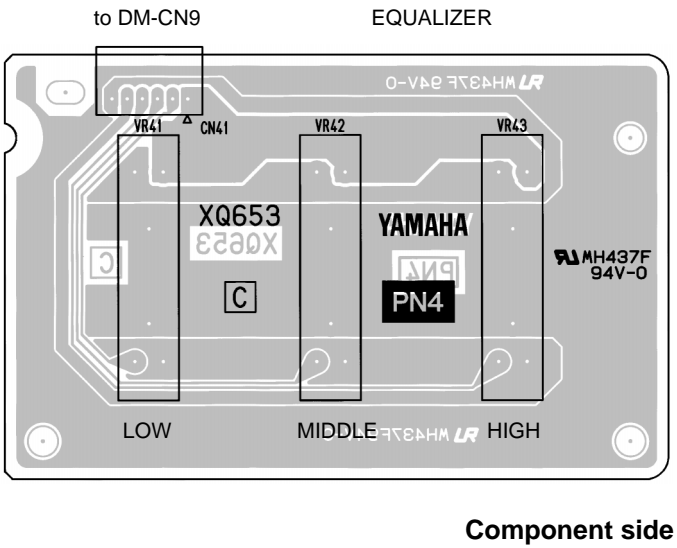
● PN2 Circuit Board



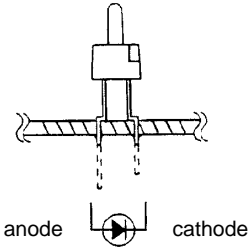
● PN3 Circuit Board



● PN4 Circuit Board

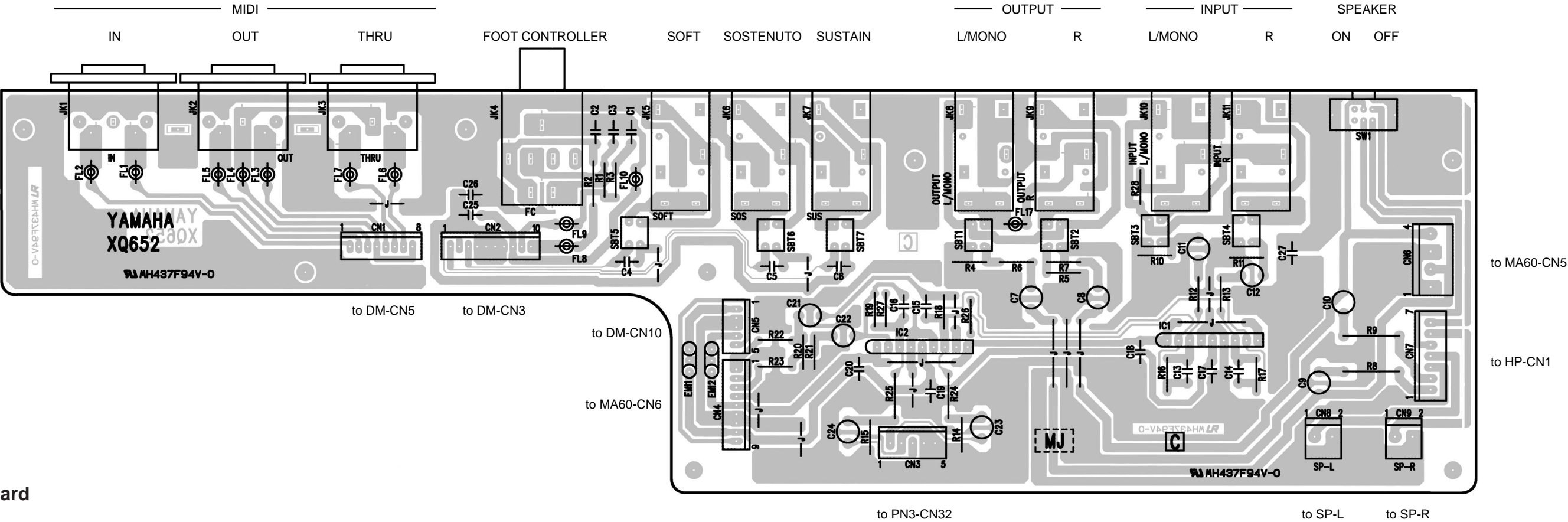


● LED installing

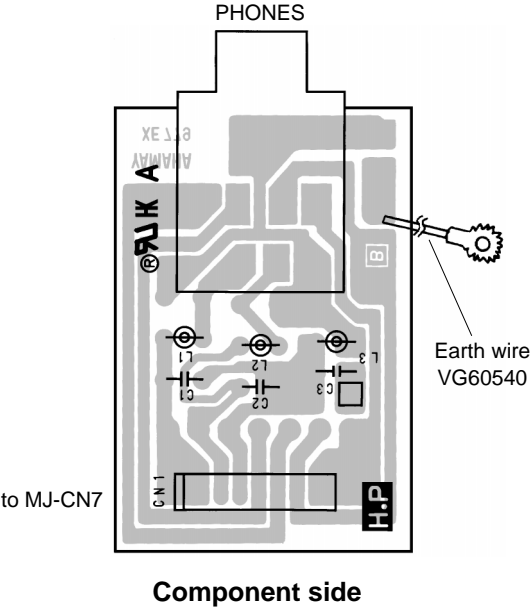


Note : See parts list for details of circuit board component parts.

● MJ Circuit Board



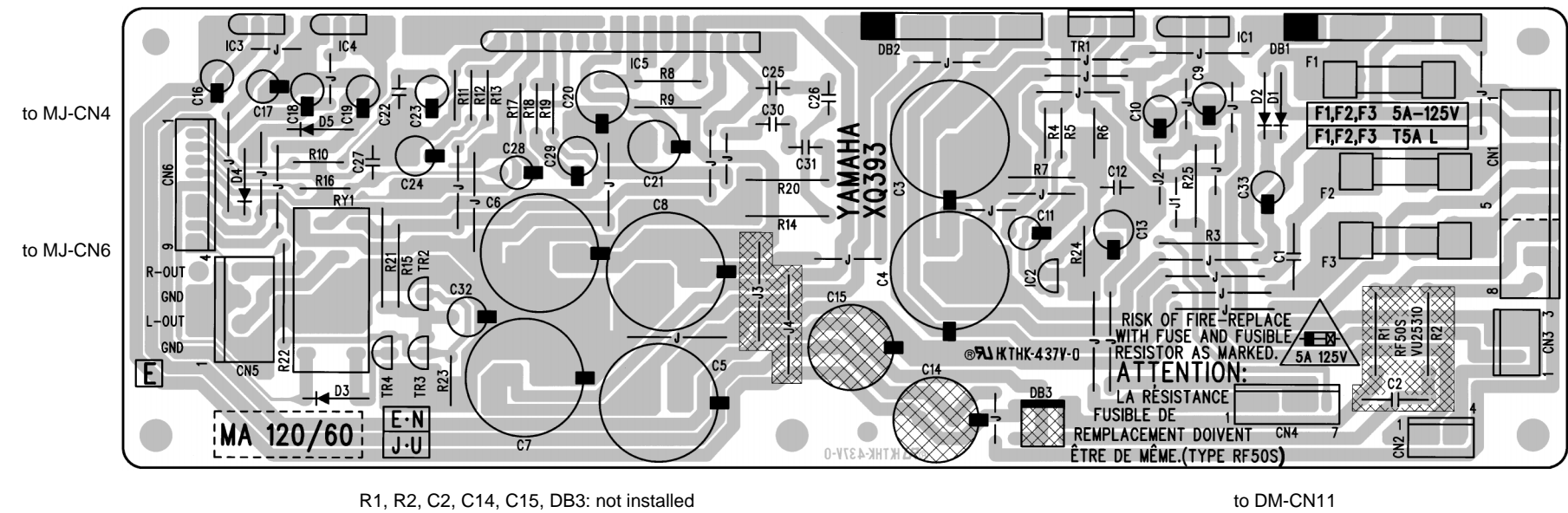
● HP Circuit Board



Note : See parts list for details of circuit board component parts.

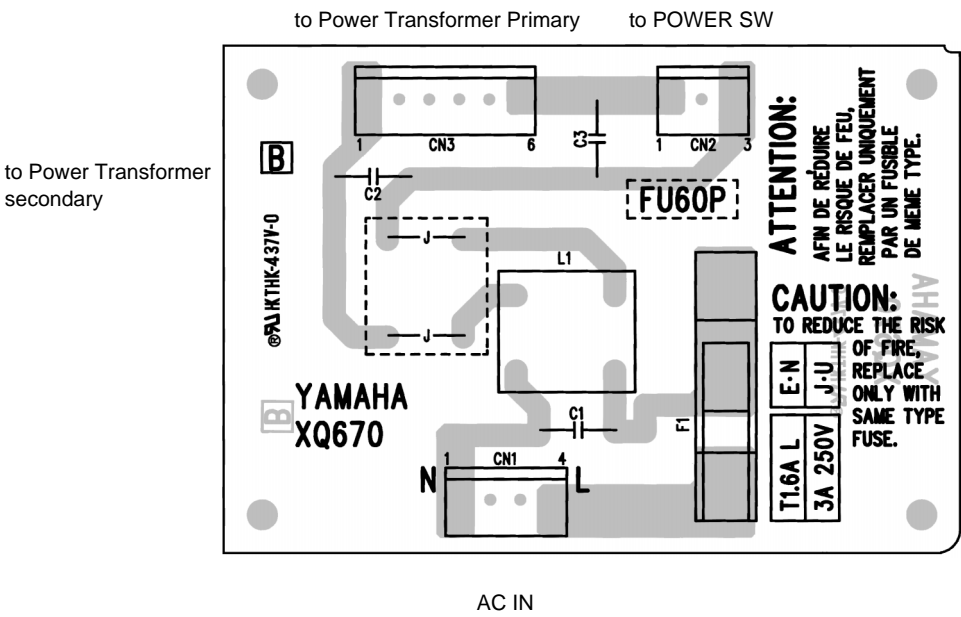
MJ : 2NA-VT35990△
HP : 2NA-VT83360

● MA60 Circuit Board

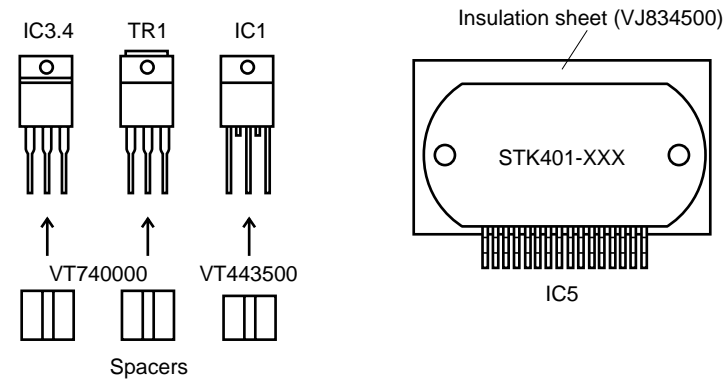


Component side

● FU60P Circuit Board




Component side





CAUTION: REPLACE WITH SAME TYPE 5A 125V FUSE.

ATTENTION: UTILISER UN FUSIBLE DE RÉCHANGE DE MÊME TYPE DE 5A 125V

NOTE : The symbol () shows Slow operating fuse.

Note : See parts list for details of circuit board component parts.

MA60 : 2NA-VT14420 

FU60P : 2NA-VT45890 

■ TEST PROGRAM

1. HOW TO ENTER THE TEST PROGRAM

While pressing the [A-1] and [C7] keys of the keyboard, turn on the power switch.

2. INITIAL TEST

The following tests will be performed automatically when the test program is initiated.

- A. The version number of the PROGRAM ROM will appear on the LCD screen.
- B. The 2nd contact check of the keyboard will be performed. If an error is detected, the system will not enter the test program.
- C. The pedal off check will be performed. If an error is detected, "NG" will appear on the LCD screen.
- D. The panel switch off check will be performed. If an error is detected, "NG" will appear on the LCD screen.

3. TEST PROGRAM

Pressing the key of the keyboard will activate the test as shown below.

[B-1][F0]:	SYSTEM RESET
[G0]:	MIDI TEST
[A0]:	(A) 1 kHz SOUND OUTPUT TEST
[B0]:	(A) 440 Hz SOUND OUTPUT TEST 1
[C1]:	(B) 440 Hz SOUND OUTPUT TEST 1
[D1]:	LCD TEST
[E1]:	LED TEST 1
[F1]:	LED TEST 2
[C3]:	(A) 440 Hz SOUND OUTPUT TEST 2
[D3]:	(B) 440 Hz SOUND OUTPUT TEST 2
[G3]:	(A) 440 Hz SOUND OUTPUT TEST 3
[A3]:	(B) 440 Hz SOUND OUTPUT TEST 3
[C4]:	(A) 32 SOUNDS OUTPUT, WAVE ROM TEST
[D4]:	(B) 32 SOUNDS OUTPUT, WAVE ROM TEST
[C5]:	RAM TEST
[C6]:	START THE DEMO SONG
[E6]:	FOOT CONTROLLER, CONTINUOUS SLIDER TEST
[F6]:	WHEEL TEST
[G6]:	PANEL EQ TEST
[B6]:	BATTERY TEST
[C7]:	PROGRAM ROM VERSION NUMBER DISPLAY

3-1. System Reset (Exit)

Press the [B-1] key or [F0] key to exit the test program, the system will then enter the play mode.

3-2. MIDI Test

After connecting the MIDI IN to the MIDI OUT terminals via a MIDI cable, press the [G0] key to execute the test. The LCD will display "OK" or "NG".

3-3. (A) 1 kHz Sound Output Test

Press the [A0] key and check that the correct sine wave signal is output from PHONES (L/R) and OUTPUT (L/R) jacks.

PHONES (L):	+17.5 +/- 3 dBm
PHONES (R):	+17.5 +/- 3 dBm
OUTPUT(L/MONO):	-3.5 +/- 3 dBm
OUTPUT(R):	-3.5 +/- 3 dBm

3-4. (A) 440 Hz Sound Output Test 1

Press the [B0] key and check that the correct sine wave signal is output from PHONES (L/R) and OUTPUT (L/R) jacks.

PHONES (L):	+19 +/- 3 dBm
PHONES (R):	+16 +/- 3 dBm
OUTPUT (L/MONO):	-2 +/- 3 dBm
OUTPUT (R):	-5 +/- 3 dBm

Next, press the [C1] key. Check that the correct sine wave signal is output from PHONES (L/R) and OUTPUT (L/R) jacks as above.

3-5. LCD Test

Press the [D1] key, and check that all dots on the LCD light together, all letters will then appear in sequence.

3-6. LED Test 1

Press the [E1] keys. Check that all LEDs on the panel light together; each block of LEDs will then light in succession.

3-7. LED Test 2

Press the [F1] key. Check that all LEDs on the panel blink together.

3-8. (A) 440 Hz Sound Output Test 2

Press the [C3] key and check that the correct sine wave signal is output from PHONES (L/R) and OUTPUT (L/R) jacks.

PHONES (L):	+20.5 +/- 3 dBm
PHONES (R):	-∞ dB
OUTPUT(L/MONO):	-0.5 +/- 3 dBm
OUTPUT(R):	-∞ dB

Next, press the [D3] key. Check that the correct sine wave signal is output from PHONES (L/R) and OUTPUT (L/R) jacks as above.

3-9. (A) 440 Hz Sound Output Test 3

Press the [G3] key and check that the correct sine wave signal is output from PHONES (L/R) and OUTPUT (L/R) jacks.

PHONES (L):	-∞ dB
PHONES (R):	+20.5 +/- 3 dBm
OUTPUT(L/MONO):	-∞ dB
OUTPUT(R):	-0.5 +/- 3 dBm

Next, press the [A3] key. Check that the correct sine wave signal is output from PHONES (L/R) and OUTPUT (L/R) jacks as above.

3-10. (A) 32 Sound Output & Wave ROM Test

When the [C4] key is pressed, sine wave signals will sound in succession from channel 1 through channel 32.

3-11. (B) 32 Sound Output & Wave ROM Test

When the [D4] key is pressed, sine wave signals will sound in succession from 1-channel through 32-channel.

3-12. RAM Test

Pressing the [C5] will activate the RAM test. The LCD will display "OK" or "NG".

3-13. Start The DEMO Song

Press the [C6] key to start the demonstration song.

3-14. FOOT CONTROLLER, CONTINUOUS SLIDER Test

Press the [E6] key to execute the FOOT CONTROLLER and CONTINUOUS SLIDER test. The LCD will display 0 (minimum) to 127 (maximum) when you operate the foot controller or the CS slider.

NOTE : Connect the foot pedal [FC7: VR type] to the FOOT CONTROLLER jack.

3-15. WHEEL Test

Press the [F6] key to execute the PITCH wheel and MODULATION wheel data entry tests. The LCD will display 0 to 127 when you move the wheel.

3-16. PANEL EQ. Test

Press the [G6] key to execute the PANEL EQ. test. The LCD will display -15 (minimum) to 0 (center) to +15 (maximum) when you operate an EQUALIZER slider.

3-17. BATTERY Test

Press the [B6] key to execute the battery test.

Check that the voltage of the battery is between 2.8 V and 3.45 V.

3-18. Program ROM Version Display

When the [C7] key is pressed, the version number of the MAIN PROGRAM ROM will appear on the LCD.

4. KSN IC Test

When turning the POWER switch on, the KSN IC test can be executed. If the test is NG, "NG" will be indicated on the LCD.

5. INITIALIZATION

While pressing the MIDI and EDIT buttons, turn on the POWER switch of the P-200; memorized data will be initialized.

■ INSPECTIONS

1. Preparations

1-1. Power supply voltage

Before testing for specifications, confirm AC line voltage is the rated value $\pm 2\%$.

1-2. Measuring Equipment

The level meter should have a JIS-C filter. The input impedance of the oscilloscope should be more than 1 M ohms.

1-3. Measuring Point

Unless specified, measure the signal at the PHONES (L) jack.

1-4. Controls

Unless specified, set the controls and jacks as follows:

POWER SW:	ON
VOLUME:	Maximum
CS:	Minimum
SPLIT:	Default Setting
TRANSPPOSE:	Default Setting
MIDI:	Default Setting
STORE:	Default Setting
EDIT:	Default Setting
PERF. A:	Default Setting
PERF. B:	Default Setting
VOICE SW:	PIANO 1 (SINGLE MODE)
EFFECT REVERB:	OFF
EFFECT MODULATION:	OFF
EQUALIZER LOW:	CENTER
EQUALIZER MIDDLE:	CENTER
EQUALIZER HIGH:	CENTER
PITCH (WHEEL):	CENTER
MODULATION (WHEEL):	Minimum
SUSTAIN:	OPEN
SOFT:	OPEN
SOSTENUTO:	OPEN
OUTPUT (L/MONO, R):	OPEN
INPUT (L/MONO, R):	OPEN
MIDI (IN, OUT, THRU):	OPEN
FOOT CONTROLLER:	OPEN
SPEAKER ON/OFF:	ON

2. INSPECTIONS

2-1. PITCH

Press the [A3] key on the keyboard, and check that the pitch of the output signal is 440 Hz ± 3 cents.

2-2. INPUT/OUTPUT LEVELS

2-2-1. Activate the test program, and press the [B0] key on the keyboard to generate a sine wave of 1 kHz (refer to TEST PROGRAM section for details). Insert appropriate phone plugs into each output jacks and check PHONES (L/R) and OUTPUT (L/R) outputs using an oscilloscope or a level meter (with JIS-C filter). Listed below are the specifications of each output during this test.

PHONES (L):	+19 ± 3 dBm
PHONES (R):	+16 ± 3 dBm
OUTPUT (L/MONO):	-2 ± 3 dBm
OUTPUT (R):	-5 ± 3 dBm

When the plug connected to the OUTPUT (R) is disconnected, the specification of the OUTPUT (L/MONO) is as follow:

OUTPUT (L/MONO):	-3 ± 3 dBm
------------------	----------------

2-2-2. When a sine wave of 1 kHz, -20 dBm is applied to the INPUT (L/MONO) jacks, the specifications and conditions of each output are as follows during the test.

PHONES (L):	+13 ± 3 dBm
PHONES (R):	+13 ± 3 dBm
OUTPUT (L/MONO):	-8 ± 3 dBm
OUTPUT (R):	-8 ± 3 dBm

2-3. NOISE LEVEL

The noise level at both L and R outputs should be less than -72 dBm if any voice or reverb effect mode is selected.

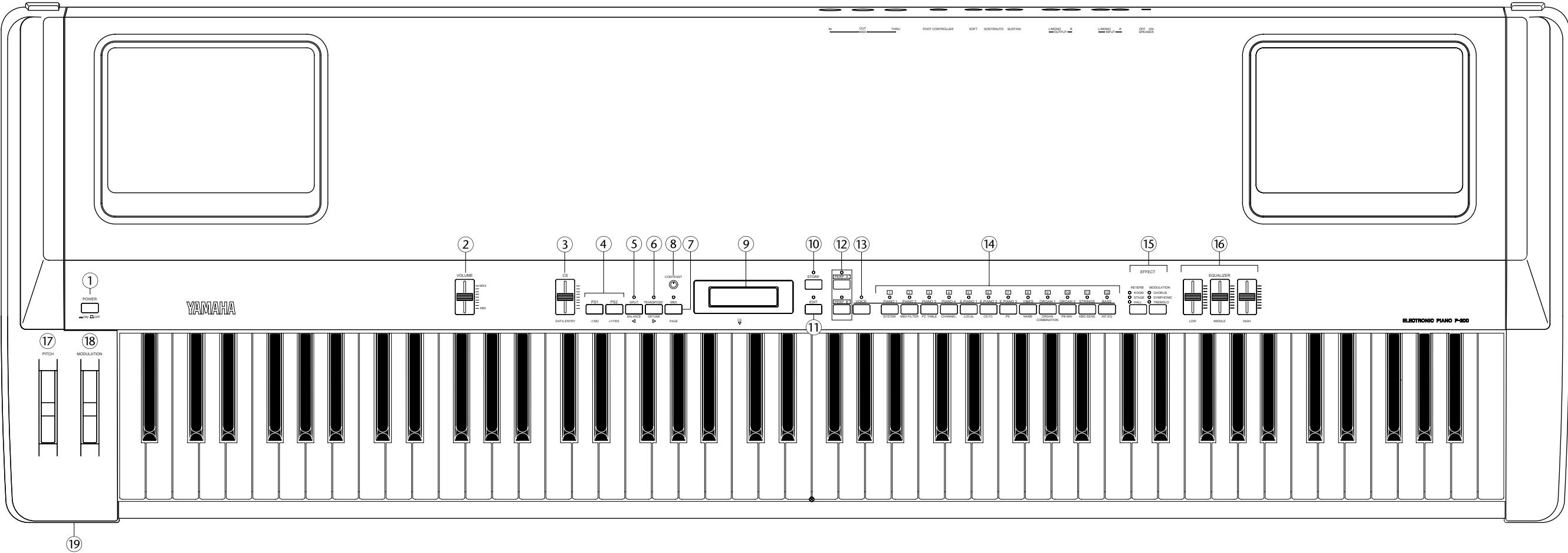
SPECIFICATIONS

Keyboard	88-key (A-1 to C7), velocity sensitive, Graded Hammer Effect keyboard		
Tone Generator	AWM; 64-note maximum polyphony		
Voices	PIANO 1 ~ 2 (STEREO/MONO); PIANO 3 ~ 4; ELECTRIC PIANO 1 ~ 3; VIBES; ORGAN 1 ~ 2; STRINGS; BASS (UPRIGHT/ELECTRIC)		
Play Modes	Voice Play mode; Performance Play mode		
Performances	Performance Bank A (1 ~ 12); Performance Bank B (1 ~ 12)		
Effects	REVERB (ROOM, STAGE, HALL, OFF); MODULATION (CHORUS, SYMPHONIC, TREMOLO, OFF)		
Panel Equalizer	LOW; MIDDLE; HIGH		
Edit	SYSTEM	MASTER TUNE	424.0Hz ~ 456.3Hz
		REVERB	bypass, active
		DEVICE NUMBER	off; 1 ~ 16; all
		MIDI MERGE	off; on
		PERFORMANCE ENABLE	MIDI CHANNEL (sys; perf); LOCAL (sys; perf); CONTROLLER ASSIGN (sys; perf)
		POPUP TIME	PC (off; 1 ~ 5); OTHERS (1 ~ 5)
		STORE TYPE	auto store; non auto store
		PANEL SWITCH LOCK MODE	disable, enable
	MIDI FILTER	TRANSMIT FILTER	Message Types; on/off
		RECEIVE FILTER	Message Types; on/off
	PC TABLE	PROGRAM CHANGE TRANSMIT	VOICE/PERFORMANCE NO.(1 ~ 12); MSB/LSB (off; 0 ~ 127); PROGRAM CHANGE NUMBER (off; 1 ~128)
		PROGRAM CHANGE RECEIVE	VOICE/PERFORMANCE NO. (off; 1 ~ 12); PROGRAM CHANGE NUMBER (1 ~128)
	CHANNEL	TRANSMIT (off; 1 ~ 16); RECEIVE (off; 1 ~ 16; all)	
	LOCAL	on; off	
	CS FC	CS ASSIGN (functions)	CS RANGE MIN (1 ~ 128); MAX (1 ~ 128)
		FC ASSIGN (functions)	FC RANGE MIN (1 ~ 128); MAX (1 ~ 128)
	PS	PS1 ASSIGN (off; start:FA; continue:FB; stop:FC)	
		PS2 ASSIGN (off; start:FA; continue:FB; stop:FC)	
	NAME	PERFORMANCE NAME	
	ORGAN COMBINATION	FOOTAGE	16', 8', 5-1/3', 4', 2-2/3', 2', 1-1/3', 1'; (0 ~ 7)
			RESPONSE (0 ~ 7)
		ATTACK	4', 2-2/3', 2'; (0 ~ 7)
			LENGTH (0 ~ 7)
			Mode (First, Each)
	PB MW	PITCH BEND RANGE (0 ~ 12)	MODULATION WHEEL ASSIGN (off; reverb depth; mod. speed; vibrato)
	KBD SENS.	KEYBOARD SENSITIVITY INTERNAL	normal; soft-1~3; hard-1~3; fixed-1~3
		KEYBOARD SENSITIVITY MIDI	normal; soft-1~3; hard-1~3; fixed-1~3
		KEYBOARD RANGE	MIN (1 ~ 128); MAX (1 ~ 128)
	INT. EQ	LOW (-16 ~ 16); MID (-16 ~ 16); HIGH (-16 ~ 16)	
	REVERB	TYPE (ROOM, STAGE, HALL, OFF); DEPTH (0 ~ 7)	
MODULATION	TYPE (CHORUS, SYMPHONIC, TREMOLO, OFF); SPEED (0 ~ 7)		
Controls	POWER; VOLUME; CS (DATA ENTRY); PS1 (-1/NO); PS2 (+1/YES); SPLIT (BALANCE, ◀); TRANSPOSE (DETUNE, ▶); MIDI (PAGE); LCD CONTRAST; PITCH WHEEL; MODULATION WHEEL; STORE; EDIT; PERF. A; PERF. B; VOICE; SELECT 1 ~ 12; REVERB, MODULATION; EQUALIZER; SPEAKER ON/OFF		
LCD screen	16-character x 2-row, backlit		
Button Lamps	SPLIT, TRANSPOSE, MIDI enable, STORE, EDIT, PERF. A, PERF. B, VOICE, 1 ~ 12 buttons, EFFECT x 6		
Input Jacks	FOOT CONTROLLER, SUSTAIN, SOSTENUTO, SOFT; LINE IN (L/MONO, R; 1/4" phone)		
Output Jacks	LINE OUT (L/MONO, R; unbalanced, 1/4" phone); PHONES		
MIDI Terminals	MIDI IN / OUT / THRU		
Electrical Characteristics	Power Consumption: 55 W; Output Impedance: 600Ω; Input Impedance: 10 kΩ		
Amplifiers	30 W x 2		
Speakers	13 cm (5-1/8") x 2		
Dimensions	1389(W) x 460(D) x 166(H) mm (54-11/16" x 18-1/8" x 6-9/16")		
Weight	30kg (66 lbs.)		
Included Accessory	FC4 Footswitch, Music Stand, Owner's Manual		
Optional Accessories	Yamaha FC4, FC5 Footswitches; Yamaha FC7 Foot Controller; Yamaha Keyboard Stand LP-3		

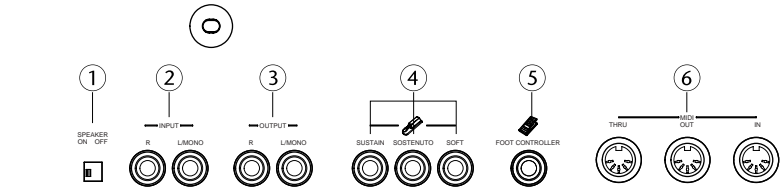
Output Level see the Inspection described on page 25 of this service manual

PANEL LAYOUT

Upper panel



Rear panel



- ① [SPEAKER] switch
- ② [INPUT] jack
- ③ [OUTPUT] jack
- ④ PEDAL jacks
 - [SUSTAIN] jack
 - [SOSTENUTO] jack
 - [SOFT] jack
- ⑤ [FOOT CONTROLLER] jack
- ⑥ [MIDI] terminals

■ ERROR MESSAGES

Occasionally you may encounter certain error messages which appear in the LCD screen. Below is a list with descriptions of each.

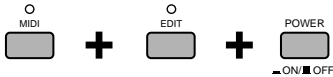
<div> <div>*** ERROR1 ***</div> <div>REPLACE BATTERY</div> </div>	The internal backup battery charge is low and the battery should be replaced.
<div> <div>*** ERROR2 ***</div> <div>MIDI RX OVERFLOW</div> </div>	Too much MIDI data is being received at once. Reception of data is interrupted and cannot be continued. Reduce the amount of data and attempt the operation again.
<div> <div>*** ERROR3 ***</div> <div>MIDI DATA ERROR</div> </div>	An error occurred during reception of MIDI data. Check all MIDI connections, settings, etc., and attempt the operation again.
<div> <div>*** ERROR4 ***</div> <div>MIDI BULK ERROR</div> </div>	An error occurred during reception of bulk data. Check all MIDI connections, settings, etc., and attempt the operation again.
<div> <div>*** ERROR5 ***</div> <div>MIDI FILTER ON !</div> </div>	Certain data cannot be transmitted or received because a MIDI Filter is set to On. Check each MIDI Filter setting in Edit mode.
<div> <div>*** ERROR6 ***</div> <div>DEVICE NO. ERROR</div> </div>	Bulk data cannot be transmitted or received because the Device Number parameter is either turned off or does not match that of the connected device.
<div> <div>*** ERROR7 ***</div> <div>MERGE SW ON !</div> </div>	The Send Bulk Data operation cannot be executed when MIDI Merge is on.

INITIALIZE

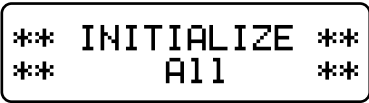
The Initialize feature lets you restore the initial factory default settings with a quick and simple operation. Before initializing the settings, make sure to first offload any data that you want to save using the Bulk Dump operation. Otherwise, the Voice and Performance data you have created will be lost permanently.

INITIALIZING THE DEFAULT SETTINGS

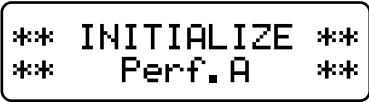
- 1. Press the [POWER] switch to turn off the power.
- 2. To initialize all the default settings, hold both the [MIDI] and [EDIT] buttons, then press the [POWER] switch to turn on the power.



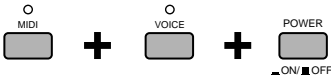
The INITIALIZE ALL screen briefly appears.



PERFORMANCE A (or B) BANK: You can also initialize only the Performance A bank (or B bank) default settings. To do so, first turn the power off, then hold both the [MIDI] and [PERF. A] buttons and turn the power back on.

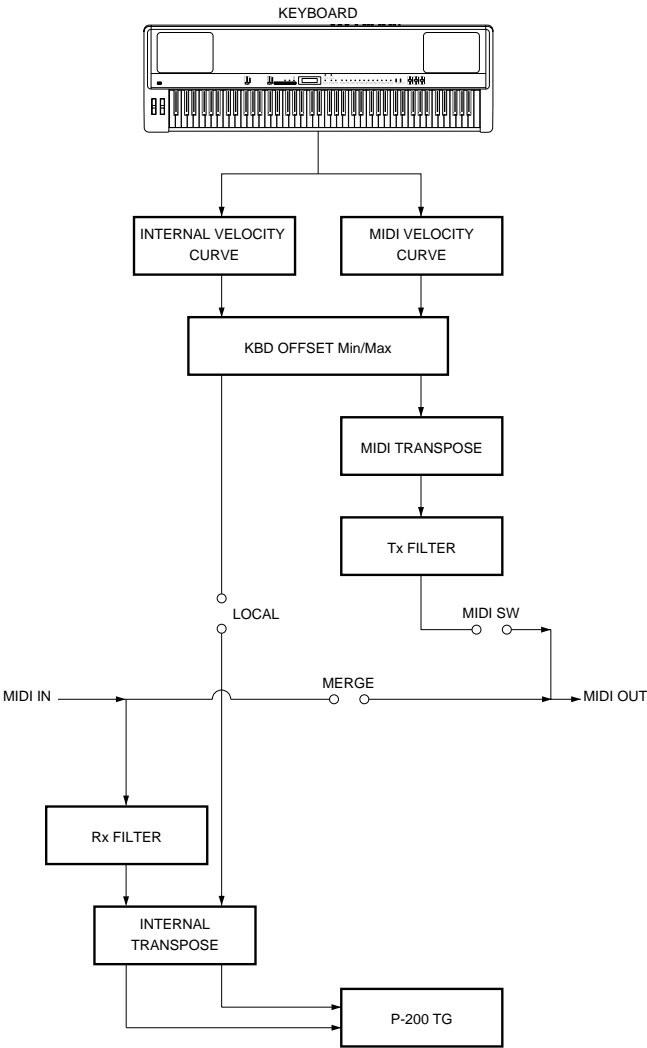


VOICE SETTINGS: Similarly, you can initialize only the Voice parameter default settings. To do so, first turn the power off, then hold both the [MIDI] and [VOICE] buttons and turn the power back on.



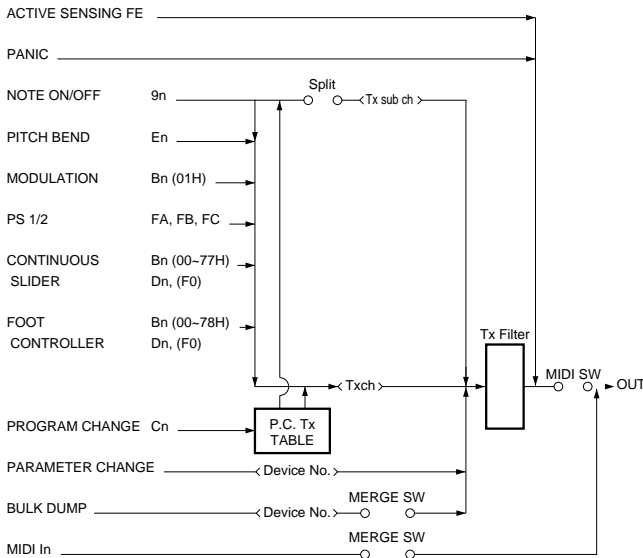
MIDI DATA FORMAT

1. MIDI DATA FLOW

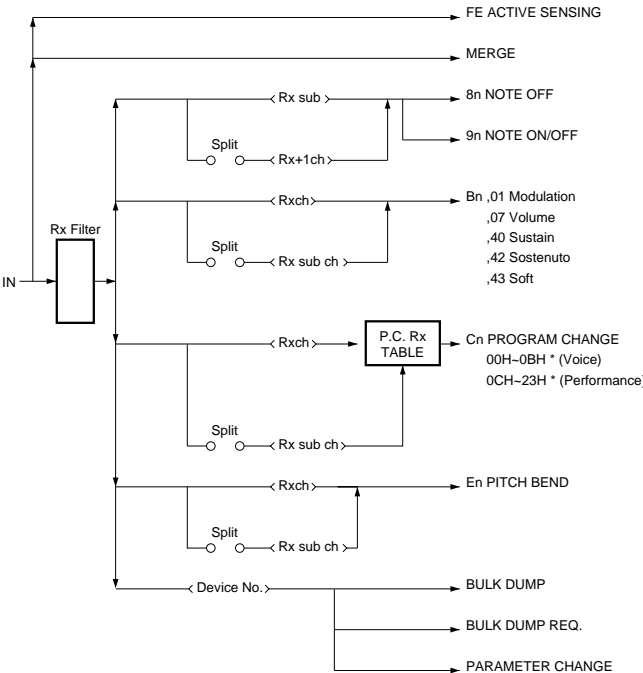


2. MIDI TRANSMISSION/RECEPTION

2.1 MIDI Transmission Condition



2.2 MIDI Reception Conditions



* (Voice) : Voice Play Mode (single) only
* (Performance) : Performance Play Mode only

3. CHANNEL MESSAGES

3.1 Transmission

3.1.1 Note On/Off

[9nH]->[kk]->[vv]
 9nH : Note on/off Status
 n : Channel No.
 kk : Key No.
 Transpose : 21 (A-1) -108 (C7)
 vv : Velocity
 Key on : 0-127
 Key off : 0

* Note range can be extended to 0-127 with MIDI TRANSPOSE

3.1.2 Control Change

Control Change No.	Controller	Value
01	Modulation Wheel	0 - 127
64	Sustain Pedal	0 , 127
66	Sostenuto Pedal	0 , 127
67	Soft Pedal	0 , 127
0 -119	FC	0 - 127
0 -119	CS	0 - 127

3.1.3 Program Change

- When you choose a voice in Voice Play mode, a Program Change Number corresponding to each selected button is transmitted.
- In Single mode, the Program Change Number corresponding to the selected button is transmitted via the Main transmit channel.
- In Dual mode, no sub voice Program Change Number is transmitted even if you select the sub voice.
(Corresponding to Parameter Change (Exclusive))
- In Split mode, Program Change Numbers corresponding to the selected buttons are transmitted via the Main and Sub transmit channels.

3.1.4 Aftertouch

When Aftertouch is assigned to the CS or FC assignable controller, Channel Pressure Data is transmitted.

3.1.5 Pitch Bend

Pitch Bend is transmitted with 7-bit resolution.

3.1.6 Channel Mode Message

When you press [Panic] switch (SW), <all sounds off>, <all notes off>, <reset all controllers> will be transmitted.
 See page 41 for detail.

3.2 Reception

3.2.1 Note On/Off

1. [9nH]->[kk]->[vv] n : channel no.
 9nH : Note on/off status
 kk : Key note
 Reception : 0 (C-2) — 127 (G8)
 vv : Velocity
 Key on : 1-127
 Key off : 0
2. [8nH]->[kk]->[vv] n : channel no.
 8nH : Note off Status
 kk : Key note
 Reception : 0 (C-2) — 127 (G8)
 vv : Velocity
 Key off : 0-127

* Note range can be extended to 0-127 with MIDI TRANSPOSE

* The notes lower than 21 (A-1) and higher than 108 (C7) will repeat one-octave higher and lower, respectively.

3.2.2 Control Change

[BnH]->[cc]->[vv]
 BnH : Control Change Status
 n : Channel No.
 cc : Control No.
 vv : Value

Control Change No.	Parameter	Value
01	Modulation Depth	0 - 127
07	Main Volume	0 - 127
64	Sustain	0 , 127
66	Sostenuto	0 , 127
67	Soft	0 , 127

3.2.3 Program Change

* In Voice Play mode if a Program Change Number from 1 to 12 is received, the voice changes to one of the following voices from the next Key On message.

RX Program Change No.	Voice
1	Piano 1
2	Piano 2
3	Piano 3
4	Piano 4
5	E. Piano 1
6	E. Piano 2
7	E. Piano 3
8	Vibes
9	Organ 1
10	Organ 2
11	Strings
12	Bass

* In Performance Play mode if a Program Change Number from 1 to 12 is received, the mode changes to Voice Play mode. If a Program Change Number from 13 to 36 is received, the mode changes to Performance Play mode and the Performance Number changes accordingly.

RX Program Change No.	Voice
13	Perf. A01
14	Perf. A02
⋮	⋮
35	Perf. B11
36	Perf. B12

* Any Bank Select message is ignored.

3.2.4 Aftertouch

Aftertouch is not received.

3.2.5 Pitch Bend

Only the MSB of the Pitch Bend is received.

3.2.6 Channel Mode

Channel Mode messages are received.

Control Change No.	Parameter	Value
78	All Sounds Off	00H
79	Reset all Controllers	00H
7B	All notes off	00H

- Channel Mode messages are received by the Receive channel while Omni Off is selected.
- All Sounds Off —
Reception is while Omni Off is selected only.
While Omni Off is selected, reception only occurs on the same Receive channel, and Key On sounds are quickly silenced.
Different from All Notes Off, a dump is forcibly taken and sound is silenced even when a damper or Sostenuto causes the sound after a Key Off to continue or reduce slowly.
- All Notes Off —
While Omni Off is selected, only those sounds that occur during Key On in the Receive Channel are silenced. Nothing is done while Omni On is selected.
- Reset All Controllers —
While Omni Off is selected, only the Receive channel is reset to its initial value. Nothing is done while Omni On is selected.
At reception, the status of the following items are reset to their initial values:
Modulation Depth, Main Volume, Sustain, Soft, Sostenuto, and Pitch Bend Depth. (Reverb Depth remains unchanged.)

Modulation Depth: Off
Sustain: Off
Sostenuto: Off

Main Volume: Max
Soft: Off
Pitch Bend Depth (Center)

4. SYSTEM REAL TIME MESSAGES

When Start, Continue, or Stop is assigned to PS1/2 controller, System Realtime messages are transmitted.

5. System Exclusive Messages

5.1 Parameter Change

5.1.1 System Setup

11110000F0
0100001143H
0001nnnnnnnn=Device Number
001010102A
0010000020
0000000000
0000000000
0pppppppppppppp=N2
0000000000
0vvvvvvvvvvvvvvv=Data Value
11110111F7

5.1.2 Voice

11110000F0
0100001143
0001nnnnnnnn=Device Number
001010102A
0010001022
0000000000
0000000000
0pppppppppppppp=N2
0000000000
0vvvvvvvvvvvvvvv=Data Value
11110111F7

5.1.3 Keyboard Mode

11110000F0
0100001143
0001nnnnnnnn=Device Number
001010102A
0010011026
0000000000
0000000000
0pppppppppppppp=N2
0000000000
0vvvvvvvvvvvvvvv=Data Value
11110111F7

5.1.4 Controller

11110000F0
0100001143
0001nnnnnnnn=Device Number
001010102A
0010011127
0000000000
0000000000
0pppppppppppppp=N2
0000000000
0vvvvvvvvvvvvvvv=Data Value
11110111F7

5.1.5 MIDI Filter Table

11110000	F0
01000011	43
0001nnnn	nnnn=Device Number
00101010	2A
00101100	2C
00000000	00
00000000	00
0ppppppp	ppppppp=N2
0000000i	i=Send switch
0vvvvvvv	vvvvvvv=Data Value
11110111	F7

5.1.6 Program Change Transmit Table

11110000	F0
01000011	43
0001nnnn	nnnn=Device Number
00101010	2A
00101110	2E
00000000	00
0iiiiiii	iiiiiii=N1
0ppppppp	ppppppp=N2
0000000i	i=Send switch
0vvvvvvv	vvvvvvv=Data Value2
11110111	F7

5.1.7 Program Change Receive Table

11110000	F0
01000011	43
0001nnnn	nnnn=Device Number
00101010	2A
00101111	2F
00000000	00
00000000	00
0ppppppp	ppppppp=N2
00000000	00
0vvvvvvv	vvvvvvv=Data Value
11110111	F7

5.2 BULK DUMP (SYSTEM EXCLUSIVE MESSAGES)

The system is capable of sending and receiving the following types of bulk dump messages:

1. System Setup Bulk Dump
2. Voice Bulk Dump
3. Keyboard Mode Bulk Dump
4. MIDI Filter Table Bulk Dump
5. Program Change Transmit Table Bulk Dump
6. Program Change Receive Table Bulk Dump

The following three types of bulk dumps are sent and received:

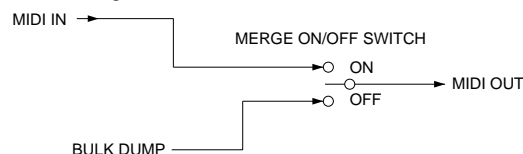
1. All Bulk Dump
All six types of bulk dumps as listed above will be sent.
2. Performance Bulk Dump
Types 2 and 3, listed above, will be sent, for Performance Play mode Performances A01 ~ A12 or B01 ~ 12.
3. Voice Bulk Dump
Types 2 and 3, listed above, will be sent, for Voice Play mode Voices 1 ~ 12 and currently stored panel settings.

The above six types of bulk dump messages can be received independently.

- For more information about bulk dump format, see page 85.
- You can assign the device number in Edit mode, System function; see page 51.
- When the device number is set to Off, bulk dump send and receive operations cannot be executed.
- When MIDI Merge (Edit mode, System function) is set to On, the P-200 cannot send bulk dump messages.
- When the device numbers of the P-200 and the external device are not matched, the P-200 cannot receive bulk dump messages.
- Bulk dump messages cannot be sent and received at the same time.
- When the MIDI Filter bulk setting (Edit mode, MIDI Filter function) is set to On, bulk dump operations cannot be executed.

5.3 MIDI MERGE

The MIDI Merge function enables you to merge data received from the MIDI IN terminal with data generated by the P-200, and transmits this merged data. This function works as follows:



1. Some features, such as Controller, might not operate as expected because channel messages can also be transmitted on the same channel as the MIDI channel that the P-200 uses for transmission. (For example, in the case of Controller, an external device connected to MIDI OUT uses the value determined by the most recently used instrument, P-200 or an external device connected to MIDI IN. The sounds from the P-200's tone generator might sometimes cut off when receiving an All Notes Off message.)
 2. A received Active Sensing message is never transmitted.
 3. When an interrupt of the received Active Sensing is detected, transmission of Active Sensing through MIDI OUT is interrupted after 500msec.
 4. When the P-200 receives 32 or more bytes of System Exclusive Messages, the MIDI messages transmitted by the P-200 might cause an interruption.
(When System Exclusive Messages from MIDI IN are received, the MIDI messages that the P-200 attempted to transmit are held temporarily; however, if the data exceeds 31 bytes, the hold is released and after an EOX is forcibly transmitted, the P-200 MIDI messages are transmitted. In this case the data bytes being received are not transmitted until reception of the status byte of non-System Realtime Messages, and are discarded.)
 5. When the MIDI Merge function is On, Bulk Dumps cannot be sent from the P-200.
 6. After the P-200 receives one status byte of the System Exclusive Messages, if the status of other channel messages, etc., are received before an EOX is received, the EOX is transmitted and other messages (for example, channel messages) are separated from the System Exclusive Messages and are transmitted.
- * When MIDI Merge is On, the MIDI Panic feature does not work.

5.4 MIDI Panic

With the P-200, pressing the [MIDI]+[REVERB]+[MODULATION] buttons suppresses MIDI transmission as an emergency method to shut down all sound.

- MIDI transmission
The following messages are transmitted :
Modulation Depth Off, Sustain Pedal Off, All Sound Off, All Note Off, Reset All Controllers, Pitch Bend Depth (Center) and Channel Pressure Off, for all channels.
 - MIDI Panic transmission is not possible when the MIDI Merge function is On.
 - MIDI Panic transmission is not possible during sending/receiving bulk data.
- * The MIDI Panic feature is an emergency measure of last resort, so sound sometimes might not stop.

6. PARAMETER CHANGE TABLE

6.1 System Setup

F0H, 43H, 1nH, 2AH, 20H, 00H, 00H, N2H, 00H, V2H, F7H

n : Device Number

N2H : Parameter Number

V2H : Parameter Value 2

	N2	data name	V2 (data range)	note
0	00	MTUNE	-64 – +63 (o/b)	Master Tuning
1	01	MENABSW	off/on	MIDI Tx Enable SW
2	02	MREVS	bypass/active	Reverb Bypass SW
3	03	MERGSW	off/on	Merge SW
4	04	PERFCHSW	sys/perf	Performance Channel Enable SW
5	05	PERFLOSW	sys/perf	Performance Local Enable SW
6	06	PERFASSSW	sys/perf	Performance Controller Assign Enable SW
7	07	POPUPPC	off, 1,, 5	Popup Time P.C. Send
8	08	POPUPOTHER	1,, 5	Popup Time Other
9	09	STORETYPE	auto store/ non auto store	Store Type auto store / non auto store
10	0A	DEVNUM	1–16, all, off	Device Number
11	0B	LOCK MODE	off/on	Panel Lock Mode (Disable/Enable)

6.2 Voice

F0H, 43H, 1nH, 2AH, 22H, 00H, 00H, N2H, 00H, V2H, F7H

n : Device Number

N2H : Parameter Number

V2H : Parameter Value 2

	N2	data name	V2 (data range)	note
0	00	PBRANGE	0–12	PB Range
1	01	MODASS	0–3	Modulation Wheel Assign
2	02	INTVELCRV	0–9	Int. KBD Sens.Type
3	03	RXVELCRV	0–9	MIDI KBD Sens. Type
4	04	VELMIN	0–127	KBD Range Min
5	05	VELMAX	0–127	KBD Range Max
6	06	REVTTYPE	0–3	Effect Reverb Type
7	07	REVDPT	0–7	Effect Reverb Depth
8	08	MODTYPE	0–3	Effect Modulation Type
9	09	MODSPD	0–7	Effect Modulation Speed
10	0A	INTEQL	-16 – +16 (o/b)	Internal Equalizer Low
11	0B	INTEQM	-16 – +16 (o/b)	Internal Equalizer Mid
12	0C	INTEQH	-16 – +16 (o/b)	Internal Equalizer High

6.3 Keyboard Mode

F0H, 43H, 1nH, 2AH, 26H, 00H, 00H, N2H, 00H, V2H, F7H

n : Device Number

N2H : Parameter Number

V2H : Parameter Value 2

	N2	data name	V2 (data range)	note
0	00	PMODE	0–2	Play Mode 0: Single/ 1: Dual/ 2: Split
1	01	VMAIN	0–11	Main Voice Number *1 2*
2	02	VDUAL	0–11	Sub Voice Number (Dual) *1
3	03	VSPLIT	0–11	Sub Voice Number (Split) 2*
4	04	VP1MONO	stereo/mono	Piano1 stereo/mono
5	05	VP2MONO	stereo/mono	Piano2 stereo/mono
6	06	VBASSEW	upright/elec.	Bass upright/elec.
7	07	ORGCMB16	0–7	Organ Combination 16'
8	08	ORGCMB8	0–7	Organ Combination 8'
9	09	ORGCMB513	0–7	Organ Combination 5+1/3'
10	0A	ORGCMB4	0–7	Organ Combination 4'
11	0B	ORGCMB223	0–7	Organ Combination 2+2/3'
12	0C	ORGCMB2	0–7	Organ Combination 2'
13	0D	ORGCMB113	0–7	Organ Combination 1+1/3'
14	0E	ORGCMB1	0–7	Organ Combination 1'
15	0F	ORGATK4	0–7	Organ Attack 4'
16	10	ORGATK223	0–7	Organ Attack 2+2/3'
17	11	ORGATK2	0–7	Organ Attack 2'

18	12	ORGATKLEN	0–7	Organ Attack Length
19	13	ORGRESPONSE	0–7	Organ Combination Response
20	14	ORG.EF	each/first	Organ Attack Each/First
21	15	reserve		
22	16	reserve		
23	17	Tx Sub ch	0–15, off	Tx Sub Channel
24	18	Rx Sub ch	0–15, off, all	Rx Sub Channel
25	19	BAL DUAL	-16 – +15 (o/b)	Dual Balance
26	1A	BAL SPLIT	-16 – +15 (o/b)	Split Balance
27	1B	DETUNE	0–7	Dual Detune
28	1C	SPOINT	A-1–C7	Split Point
29	1D	SAREA	upper/lower	Split Main Voice Area
30	1E	SFTSW	off/on	Transpose Switch
31	1F	SFTMAIN	-24 – +24 (o/b)	Main Voice Transpose
32	20	SFTSUB D	-24 – +24 (o/b)	Sub Voice Transpose (Dual)
33	21	SFTSUB S	-24 – +24 (o/b)	Sub Voice Transpose (Split)
34	22	SFTMAIN MD	-24 – +24 (o/b)	Main Voice MIDI Transpose
35	23	SFTSUB MD	-24 – +24 (o/b)	Sub Voice MIDI Transpose
36	24	LOCALSW	off/on	Local on/off Switch
37	25	TXCH	0–15, off	TX Main Channel
38	26	RXCH	0–15, off, all	Rx Main Channel
39	27	reserve		
40	28	ASSPS1	0–3	PS1 Assign
41	29	ASSPS2	0–3	PS2 Assign
42	2A	ASSCS	0–126	CS Assign
43	2B	ASSCSMIN	0–127	CS Range Min
44	2C	ASSCSMAX	0–127	CS Range Max
45	2D	ASSFC	0–126	FC Assign
46	2E	ASSFCMIN	0–127	FC Range Min
47	2F	ASSFCMAX	0–127	FC Range Max
48	30	PERFNAME1	32–127	Performance Name 1
49	31	PERFNAME2	32–127	Performance Name 2
50	32	PERFNAME3	32–127	Performance Name 3
51	33	PERFNAME4	32–127	Performance Name 4
52	34	PERFNAME5	32–127	Performance Name 5
53	35	PERFNAME6	32–127	Performance Name 6
54	36	PERFNAME7	32–127	Performance Name 7
55	37	PERFNAME8	32–127	Performance Name 8
56	38	PERFNAME9	32–127	Performance Name 9
57	39	PERFNAME10	32–127	Performance Name 10
58	3A	PERFNAME11	32–127	Performance Name 11
59	3B	PERFNAME12	32–127	Performance Name 12
60	3C	PERFNAME13	32–127	Performance Name 13
61	3D	PERFNAME14	32–127	Performance Name 14
62	3E	PERFNAME15	32–127	Performance Name 15
63	3F	PERFNAME16	32–127	Performance Name 16

*1 Not possible for Dual mode with Organ 1 and another voice.

*2 Execute transmission only.

6.4 Controller

F0H, 43H, 1nH, 2AH, 27H, 00H, 00H, N2H, 00H, V2H, F7H

n : Device Number

N2H : Parameter Number

V2H : Parameter Value 2

	N2	data name	V2 (data range)	note
0	00	reserve		
1	01	reserve		
2	02	VOL TTL	0–127	Total Volume
3	03	VAL MAIN	0–127	Main Voice Volume
4	04	VUL SUB	0–127	Sub Voice Volume
5	05	VIBSPD	0–127	Vibrato Speed Control
6	06	REVDEP	0–7	Reverb Depth Control
7	07	MODSPD	0–7	Modulation Speed Control

* Transmitted and received when allocated to the assignable Controller.

6.5 MIDI Filter

F0H, 43H, 1nH, 2AH, 2CH, 00H, 00H, N2H, 00H, 2VH, F7H

n : Device Number

N2H : Parameter Number

V2H : Parameter Value 2

	N2	data name	V2 (data range)	note
0	00	TXMFILNOTE	off/on	Tx MIDI Filter Note on/off
1	01	TXMFILCTRL	off/on	Tx MIDI Filter Ctrl Change
2	02	TXMFILPC	off/on	Tx MIDI Filter Prog. Change
3	03	TXMFILAFT	off/on	Tx MIDI Filter Aftertouch
4	04	TXMFILPB	off/on	Tx MIDI Filter Pitch Bend
5	05	TXMFILCH	off/on	Tx MIDI Filter Channel Message
6	06	TXMFILPRM	off/on	Tx MIDI Filter Exclusive
7	07	TXMFILBULK	off/on	Tx MIDI Filter Bulk
8	08	TXMFILSYS	off/on	Tx MIDI Filter FA/FB/FC
9	09	RXMFILNOTE	off/on	Rx MIDI Filter Note on/off
10	0A	RXMFILCTRL	off/on	Rx MIDI Filter Ctrl Change
11	0B	RXMFILPC	off/on	Rx MIDI Filter Prog. Change
12	0C	reserve		
13	0D	RXMFILPB	off/on	Rx MIDI Filter Pitch Bend
14	0E	RXMFILCH	off/on	Rx MIDI Filter Channel Message
15	0F	RXMFILPRM	off/on	Rx MIDI Filter Exclusive
16	10	RXMFILBULK	off/on	Rx MIDI Filter Bulk

6.6 Program Change Transmit Table

F0H, 43H, 1nH, 2AH, 2EH, 00H, N1H, N2H, V1H, V2H, F7H

n : Device Number

N1H : Parameter Number

N2H : Parameter Number

V1H : Parameter Value 1 (= 1 don't send P.C.)

V2H : Parameter Value 2

	N2	data name	V2 (data range)	note
0	00	TXPGM1	0-127	Voice 01
:	:	:	0-127	:
:	:	:	0-127	:
11	0B	TXPGM12	0-127	Voice 12
12	0C	TXPGM13	0-127	Perf. A01
:	:	:	0-127	:
:	:	:	0-127	:
23	17	TXPGM24	0-127	Perf. A12
24	18	TXPGM25	0-127	Perf. B01
:	:	:	0-127	:
:	:	:	0-127	:
35	23	TXPGM36	0-127	Perf. B12

N2	data name
00	TX P.C. Data
01	Bank Select MSB
02	Bank Select LSB

6.7 Program Change Receive Table

F0H, 43H, 1nH, 2AH, 2FH, 00H, 00H, N2H, 00H, V2H, F7H

n : Device Number

N2H : Parameter Number.

V2H : Parameter Value 2

	N2	data name	V2 (data range)	note
0	00	RXPGM1	Voice 01-Perf. B12, off	Program Change Number 1
1	01	RXPGM2	Voice 01-Perf. B12, off	Program Change Number 2
2	02	RXPGM3	Voice 01-Perf. B12, off	Program Change Number 3
:	:	:	:	:
:	:	:	:	:
:	:	:	:	:
126	7E	RXPGM127	Voice 01-Perf. B12, off	Program Change Number 127
127	7F	RXPGM128	Voice 01-Perf. B12, off	Program Change Number 128

7. BULK DUMP

7.1 System Setup & Dump Request

SYSTEM SETUP		DUMP REQUEST	
	data		data
0	F0H	0	F0H
1	43H	1	43H
2	0NH	2	2NH
3	7AH	3	7AH
4	] bytes	4	S
5		5	K
6	S	6	-
7	K	7	-
8	-	8	2
9	-	9	4
10	2	10	9
11	4	11	0
12	9	12	S
13	0	13	Y
14	S	14	] 00H
15	Y	↓	
16	] 00H	29	
↓		30	F7H
31			

Supplement: Parameter Change

1. 00H-0BH of system setup	
32	MTUNE
↓	
43	LOCK MODE

32	check_sum
43	F7H

7.2 Voice

type 1: 00H
type 2: Voice Number

type2	VOICE NUMBER
00H	Voice 01
01H	Voice 02
02H	Voice 03
03H	Voice 04
04H	Voice 05
05H	Voice 06
06H	Voice 07
07H	Voice 08
08H	Voice 09
09H	Voice 10
0AH	Voice 11
0BH	Voice 12
0CH	Perf. A01 Voice
0DH	Perf. A02 Voice
0EH	Perf. A03 Voice
0FH	Perf. A04 Voice
10H	Perf. A05 Voice
11H	Perf. A06 Voice
12H	Perf. A07 Voice
13H	Perf. A08 Voice
14H	Perf. A09 Voice
15H	Perf. A10 Voice
16H	Perf. A11 Voice
17H	Perf. A12 Voice
18H	Perf. B01 Voice
19H	Perf. B02 Voice
1AH	Perf. B03 Voice
1BH	Perf. B04 Voice
1CH	Perf. B05 Voice
1DH	Perf. B06 Voice
1EH	Perf. B07 Voice
1FH	Perf. B08 Voice
20H	Perf. B09 Voice
21H	Perf. B10 Voice
22H	Perf. B11 Voice
23H	Perf. B12 Voice

VOICE		DUMP REQUEST	
	data		data
0	F0H	0	F0H
1	43H	1	43H
2	0NH	2	2NH
3	7AH	3	7AH
4	] bytes	4	S
5		5	K
6		6	-
7	S	7	-
8	K	8	2
9	-	9	4
10	2	10	9
11	4	11	0
12	9	12	V
13	0	13	0
14	V	14	] 00H
15	0	↓	
16	] 00H	27	
↓		28	type 1
29		29	type 2
30	type 1	30	F7H
31	type 2		
Supplement: Parameter Change			
2. 00H-0CH of Voice			
32	PBRANGE		
↓			
44	INTEQH		
45	check_sum		
46	F7H		

7.3 Keyboard Mode

type 1: 00H
type 2: Performance Number

type2	VOICE NUMBER
00H	Perf. A01
:	:
:	:
0BH	Perf. A12
0CH	Perf. B01
:	:
:	:
17H	Perf. B12
18H	Voices

KEYBOARD MODE	
	data
0	F0H
1	43H
2	0NH
3	7AH
4	□ bytes
5	□
6	S
7	K
8	-
9	-
10	2
11	4
12	9
13	0
14	K
15	B
16	□
↓	□ 00H
29	□
30	type 1
31	type 2

Supplement: Parameter Change

3. 00H–3FH of Keyboard Mode

32	PMODE
↓	
95	PERFNAME 16
96	check_sum
97	F7H

DUMP REQUEST	
	data
0	F0H
1	43H
2	2NH
3	7AH
4	S
5	K
6	-
7	-
8	2
9	4
10	9
11	0
12	K
13	B
14	□
↓	□ 00H
27	□
28	type 1
29	type 2
30	F7H

7.4 MIDI Filter Table Bulk Dump

P.C. TX TABLE		DUMP REQUEST	
	data		data
0	F0H	0	F0H
1	43H	1	43H
2	0NH	2	2NH
3	7AH	3	7AH
4	□ bytes	4	S
5	□	5	K
6	S	6	-
7	K	7	-
8	-	8	2
9	-	9	4
10	2	10	9
11	4	11	0
12	9	12	M
13	0	13	F
14	M	14	□
15	F	↓	□ 00H
16	□	29	□
↓	□ 00H	30	F7H
31	□		

Supplement: Parameter Change

4. 00H–10H of MIDI Filter Table

32	TXMFILNOTE
↓	
48	RXMFILBULK
49	check_sum
50	F7H

7.5 Program Change Transmit Table Bulk Dump

type 1: 00H
type 2: Voice No.

type2	VOICE NUMBER
00H	P.C.Data
01H	Bank Select MSB
02H	Bank Select LSB

P.C. Tx TABLE	
	data
0	F0H
1	43H
2	0NH
3	7AH
4	] bytes
5	
6	S
7	K
8	-
9	-
10	2
11	4
12	9
13	0
14	P
15	T
16	] 00H
↓	
29	
30	type 1
31	type 2

Supplement: Parameter Change	
5. 00H–23H of Program Change	
Transmit Table	
32	TXPGM1 (MSB)
33	TXPGM1 (LSB)
↓	
102	TXPGM36 (MSB)
103	TXPGM36 (LSB)
96	check_sum
97	F7H

DUMP REQUEST	
	data
0	F0H
1	43H
2	2NH
3	7AH
4	S
5	K
6	-
7	-
8	2
9	4
10	9
11	0
12	P
13	T
14	] 00H
↓	
27	
28	type 1
29	type 2
30	F7H

7.6 Program Change Receive Table Bulk Dump

P.C. TX TABLE	
	data
0	F0H
1	43H
2	0NH
3	7AH
4	] bytes
5	
6	S
7	K
8	-
9	-
10	2
11	4
12	9
13	0
14	P
15	R
16	] 00H
↓	
31	
Supplement: Parameter Change	
6. 00H–7FH of Program Change	
Receive Table	
32	RXPGM1
↓	
159	RXPGM128
160	check_sum
161	F7H

DUMP REQUEST	
	data
0	F0H
1	43H
2	2NH
3	7AH
4	S
5	K
6	-
7	-
8	2
9	4
10	9
11	0
12	P
13	R
14	] 00H
↓	
29	
30	F7H

YAMAHA [Electronic Piano P-200]
Model : P-200

MIDI Implementation Chart

Date: 1-DEC-1997
Version: 1.0

Function...		Transmitted	Recognized	Remarks
Basic Channel	Default Changed	1 - 16 1 - 16	1 - 16 1 - 16	memorized
Mode	Default Messages Altered	Mode 3 X *****	Mode 1 , 3 X X	memorized
Note Number	: True voice	0 - 127 *****	1 - 127 21 - 108	
Velocity	Note on Note off	○ 9nH, v = 1 - 127 X 9nH, v = 0	○ v = 1 - 127 X	
After Touch	Key's Ch's	X ○	X X	
Pitch Bender		○	○ 0 - 12 semi	7 bit resolution
Control Change	0, 32 1 7 64 66 67 1 - 119	○ Bank select ○ M. Wheel ○ Foot Volume ○ Sustain ○ Sostenuto ○ Soft ○ Assignable	X ○ ○ ○ ○ ○ X	
	120 121	○ ○	*1 ○ *1 ○	All sound off Reset All Controllers
Program Change	: True #	○ 0 - 127 *****	○ 0 - 127 ○ 0 - 11	assignable
System Exclusive		○	○	voice etc.
System Common	: Song Position : Song Select : Tune	X X X	X X X	
System Real Time	: Clock : Commands	X ○	X X	
Aux Messages	: Local On/Off : All Notes Off : Active Sense : Reset	X ○ ○ X	*1 X ○ ○ X	
Notes : Received messages are merged to MIDI OUT when MIDI merge Switch is on. *1=Transmit if PANIC Switch is ON.				

Mode 1: OMNI ON, POLY
Mode 3: OMNI OFF, POLY

Mode 2: OMNI ON, MONO
Mode 4: OMNI OFF, MONO

○ : Yes
X : No

ELECTRONIC PIANO

P-200

PARTS LIST


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Notes : DESTINATION ABBREVIATIONS

A : Australian model	J : Japanese model
B : British model	U : U.S. model
C : Canadian model	V : General export model (110V)
E : European model	W : General export model (220V)
I : Indonesian model	X : General export model
O : Chinese model	Y : Export model

■ WARNING

Components having special characteristics are marked  and must be replaced with parts having specification equal to those originally installed.

- The numbers in "QTY" show quantities for each unit.
- The parts with "- -" in "PART NO." are not available as spare parts.

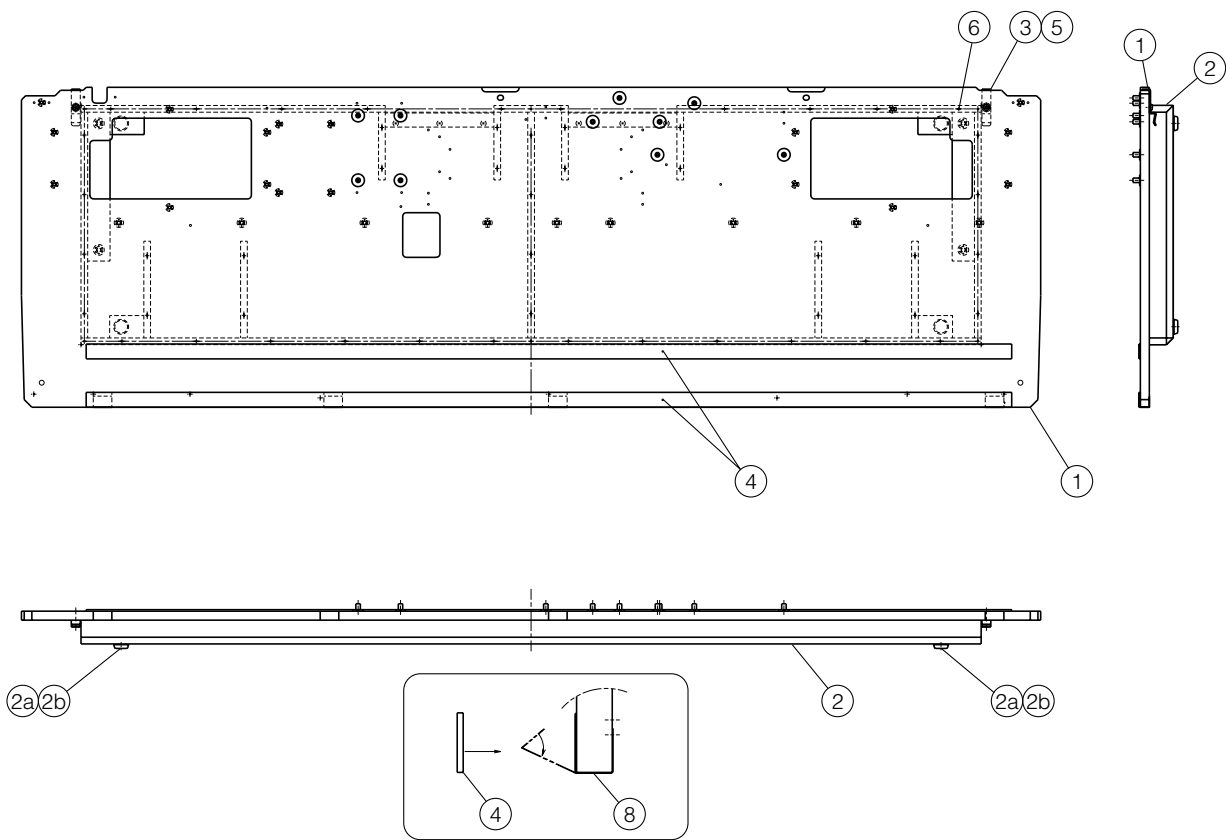


REF.NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
	---	OVERALL ASSEMBLY	J	J P-200 (VZ87520)		
	---	OVERALL ASSEMBLY	U	U P-200 (VZ87550)		
	---	OVERALL ASSEMBLY	E	E P-200 (VZ87560)		
	---	OVERALL ASSEMBLY	GBR	B P-200 (VZ87570)		
	---	OVERALL ASSEMBLY	AUS	A P-200 (VZ26880)		
* 10	VZ750400	Keybed Assembly				
20	---	Control Panel Unit		(VZ87970)		
* 30	VZ874300	Front Rail Assembly				
40	VV606200	Keyboard Holder Assembly				10
* 50	VZ705400	Keyboard Assembly	GHD A88 K6			
60	---	Speaker Box Assembly	(L)	(VZ88630)		
70	---	Speaker Box Assembly	(R)	(VZ88640)		
80	---	JACK Unit		(VT45830)		
80a	VN134300	Earth Plate				05
80b	LB301910	U-shaped Holder	HLJ0999-01-480		8	01
80c	VT360500	Circuit Board	MJ			17
90	VT475700	Cover, MA	SECC-T1 T0.8	U		07
100	V2269700	Cover, FU	94V0	U		07
* 110	XQ429B00	Power Transformer	GA-60J	J		12
110	XQ430A00	Power Transformer	29WP243 UL/CSA	U		11
110	XQ431B00	Power Transformer	GA-60 E IEC65	E,B		12
120	VT458600	Circuit Board	FU60P J,U	J,U		09
120	VT458700	Circuit Board	FU60P E,GBR	E,B		09
130	VT765300	Circuit Board Assembly	MA60 J,U	J,U		22
130	VT765500	Circuit Board Assembly	MA60 E,N	E,B		22
140	VN474900	AC Cord Assembly	J	J		09
140	VN475000	AC Cord Assembly	UL	U		09
140	VN475200	AC Cord Assembly	CEE	E		09
140	VN475300	AC Cord Assembly	BS	B		11
150	---	Name Plate	J	J (VZ76700)		
150	---	Name Plate	U	U (VZ76710)		
150	---	Name Plate	E	E,B (VZ76720)		
160	CB033610	Cord Binder	L=160			01
170	EP030340	Bind Head Tapping Screw-1	3.5 x 12 MFZN2BL	J	24	01
170	EP030340	Bind Head Tapping Screw-1	3.5 x 12 MFZN2BL	U	32	01
170	EP030340	Bind Head Tapping Screw-1	3.5 x 12 MFZN2BL	E,B	24	01
180	VK348200	Cup Screw	4.0 x 18 MFZN2Y		12	01
190	VD976600	Bind Head Screw	3.0 x 8 MFZN2Y		12	01
200	VV040700	Pan Head Screw	5.0 x 25 MFZN2Y PW		9	01
210	EP040230	Bind Head Tapping Screw-1	4.0 x 14 MFZN2Y		2	01
220	VB132700	Bind Head Screw	4.0 x 12 MFZN2Y		6	01
230	EP030250	Bind Head Tapping Screw-1	3.5 x 14 MFZN2BL		8	01
240	VB919400	Pan Head Screw	PW 5.0 x 25 MFZN2BL		4	01
250	EP600230	Bind Head Tapping Screw-B	3.0 x 6 MFZN2BL		3	01
260	EX001130	Flat Washer	5.0 x 12 x 0.8 MFZN2Y		2	
270	CB817510	Cord Binder	S-14B		8	03
280	---	Holder	1.6	(V217500)	2	
300	---	Connector Assembly	GH	(V223690)		
310	---	Connector Assembly	MJ	(VZ88580)		
320	---	Connector Assembly	KRD-KRD 10P-250	(VJ98270)		
330	---	Connector Assembly	KRD-KRD 3P-450	(VK11070)		
340	---	Connector Assembly	KRD-KRD 13P-500	(VK11280)		
350	---	Connector Assembly	KRD-KRD 11P-100	(VK09870)		
360	VK098800	Connector Assembly	KRD-KRD 12P-100			05
370	---	Connector Assembly	KRD-KRD 6P-300	(VJ98120)		04
380	---	Connector Assembly	KRD-KRD 15P-450	(VK11170)		
390	---	Connector Assembly	KRD-KRD 5P-300	(VK10560)		
400	---	Connector Assembly	KRD-1	(V201750)		
410	---	Connector Assembly	KRD-2	(VT86520)		
420	---	Connector Assembly	SP VH-VH 4P	(VT41300)		
430	---	Connector Assembly	VOL-1	(VT53330)		
440	---	Connector Assembly	VOL-2	(VZ88600)		
450	---	Connector Assembly	HP	(VT86500)		
460	VN103500	Lithium Battery	CR2032			03
470	CB069250	Cord Holder	BK-1		9	01
480	VP834600	Adhesive Tape	12 x 50			02
* 490	VZ737500	Angle Assembly	MA60 Ass'y		2	
500	---	Cushion	80 50	(V202310)		
		ACCESSORIES				
	---	Sustain Pedal	FC4	(VT37300)		
* 500	VZ885400	Music Rest Unit				

*: New Parts

RANK:Japan only

KEYBED ASSEMBLY

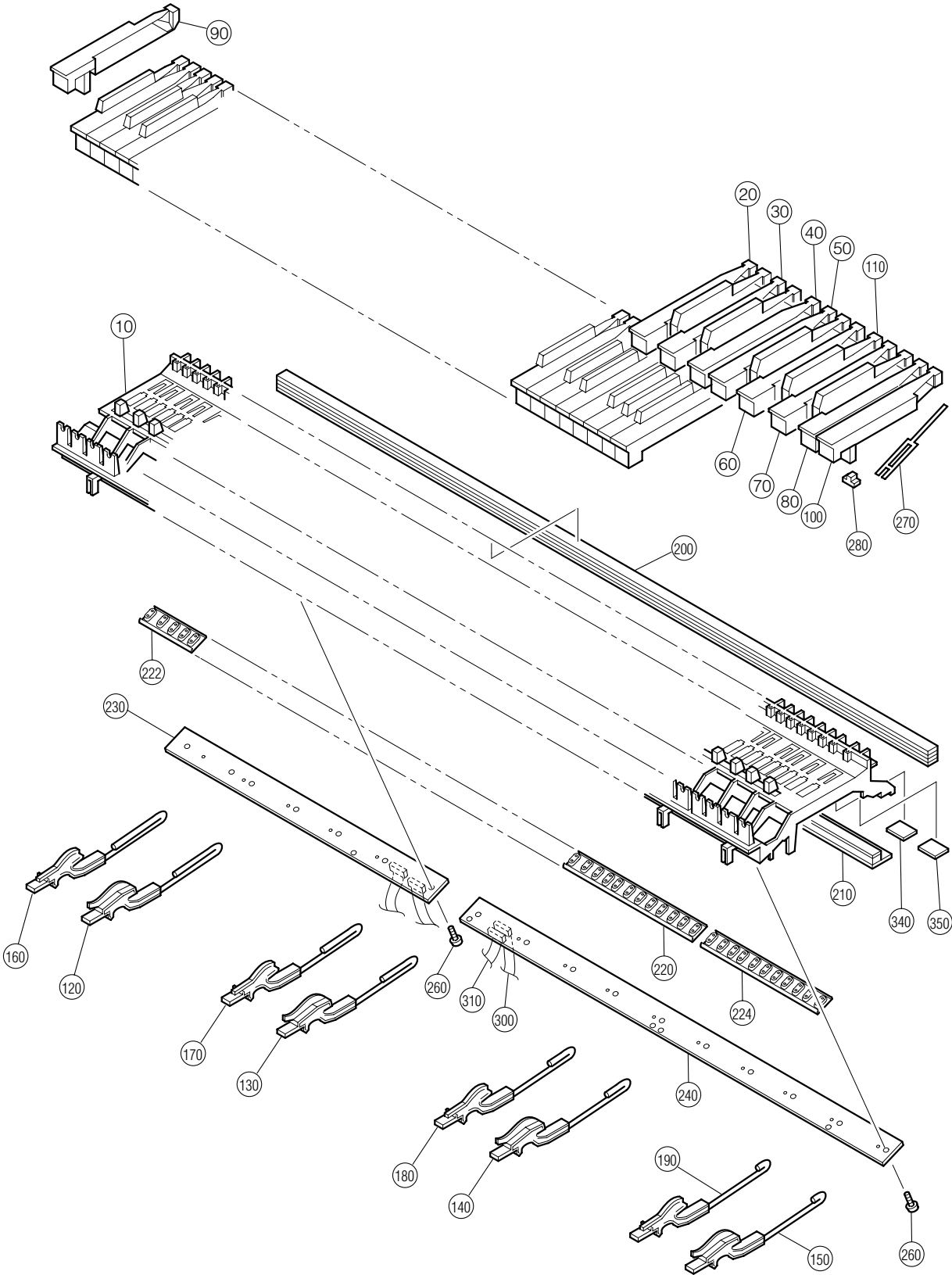


REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
*	VZ750400	KEYBED ASSEMBLY		P-200		
1	—	Keybed Sub Assembly		(VZ73740)		
2	—	Duct Box Assembly	CL P-100	(VN12930)		
2a	CB012090	Slip Fitting			4	03
2b	EM040130	Flat Head Tapping Screw-1	4.0 x 25 MFZN2BL		4	01
3	VN463500	Guide Plate	PF100		2	05
4	—	Cushion	BL	(VZ75050)	2	
5	VA942200	Bind Head Screw	4.0 x 14 MFZN2BL		2	01
8	—	Adhesive Tape	T-200 25 x 20m	(VU95580)		

*: New Parts

RANK:Japan only

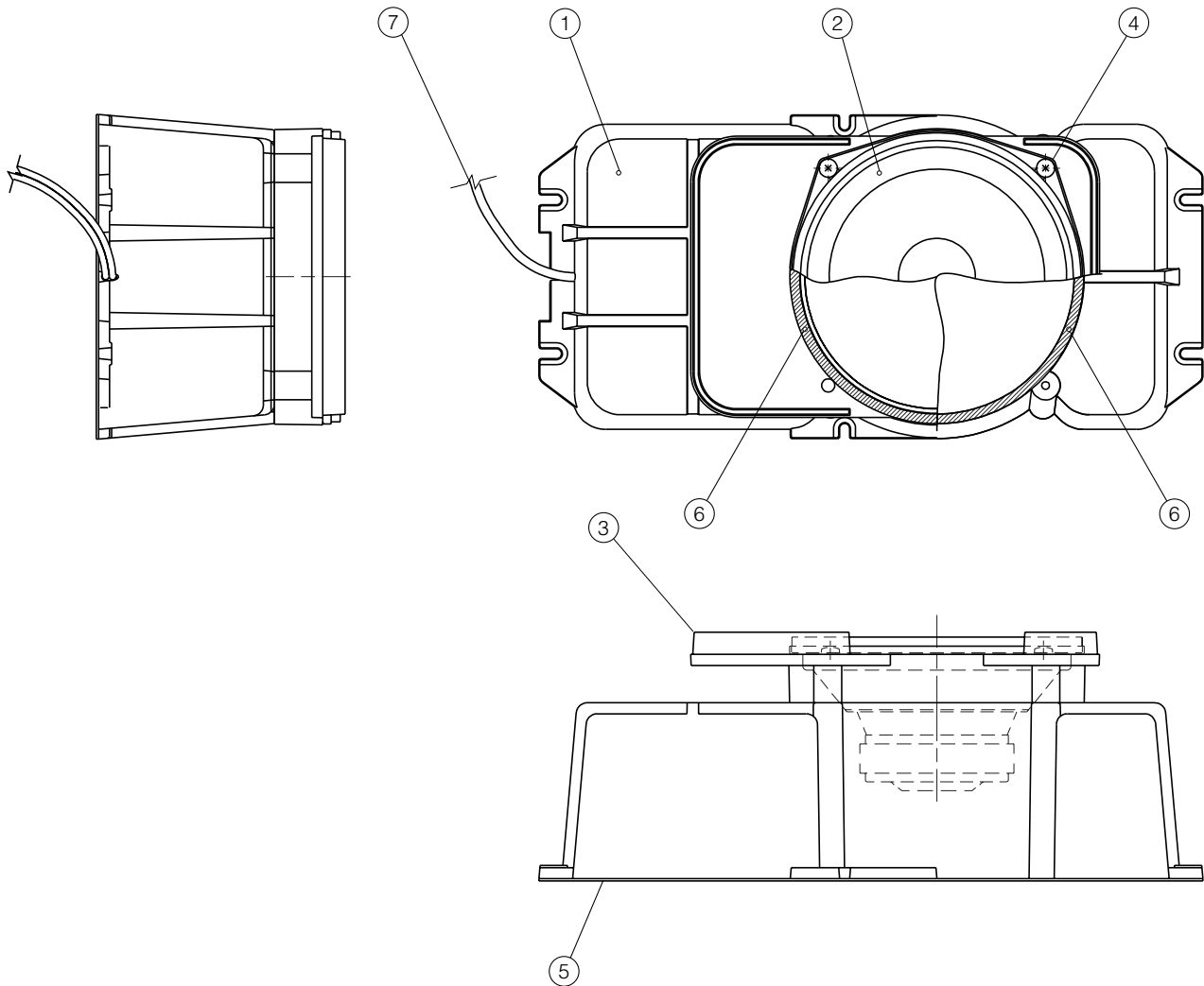
KEYBOARD ASSEMBLY



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■ SPEAKER BOX ASSEMBLY

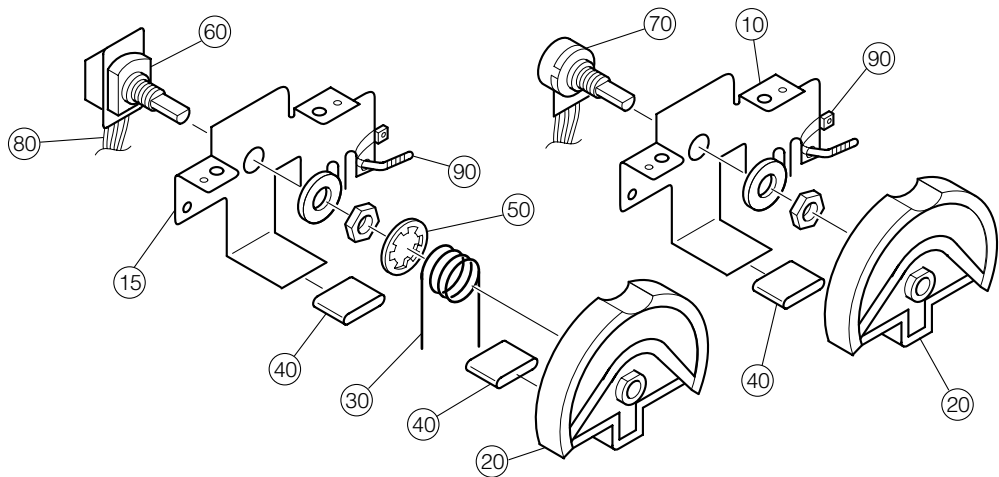


REF.NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
	---	SPEAKER BOX ASSEMBLY	(L)	P-200 (VZ88630)		
1	VP114800	Speaker Box	BL			08
2	XK889A00	Speaker	13.0cm 8ohm 30W			09
3	VZ886500	Spacer	BL			
4	VZ893400	Bind Head Tapping Screw-P	4.0 x 30 MFZN2Y		4	
5	---	Shield	BL	(VP21080)		
6	VN417800	Shield	BL		2	07
7	---	Connector Assembly	SP-L	(VN83140)		
	---	SPEAKER BOX ASSEMBLY	(R)	(VZ88640)		
1	VP114800	Speaker Box	BL			08
2	XK889A00	Speaker	13.0cm 8ohm 30W			09
3	VZ886500	Spacer	BL			
4	VZ893400	Bind Head Tapping Screw-P	4.0 x 30 MFZN2Y		4	
5	---	Shield	BL	(VP21080)		
6	VN417800	Shield	BL		2	07
7	---	Connector Assembly	SP-R	(VN47460)		

*: New Parts

RANK:Japan only

WHEEL ASSEMBLY

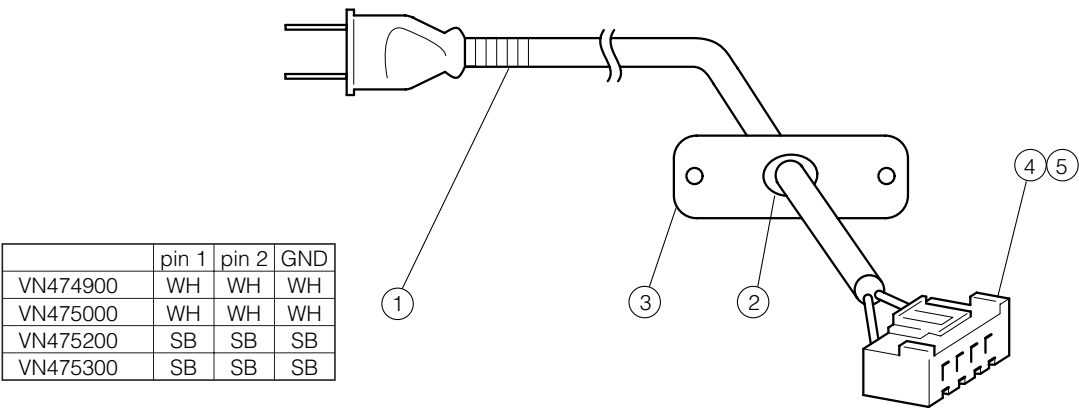


REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
	— —	WHEEL ASSEMBLY		PITCH,MODULATION(VT45790)		
10	VF536800	Frame	A V		2	02
15	VJ187600	Frame				02
20	VQ546400	Wheel				06
30	VC792800	Spring			3	01
40	CB819020	Wheel Tube				04
50	EW600110	Stop Ring	12.0			01
60	VN245300	Rotary Variable Resistor	10.0K RK1241110			04
70	VN245400	Rotary Variable Resistor	10.0K K161100S			03
80	— —	Connector Assembly	WHEEL	(VT43120)	2	01
90	CB069250	Cord Holder	BK-1			

*: New Parts

RANK:Japan only

AC CORD ASSEMBLY

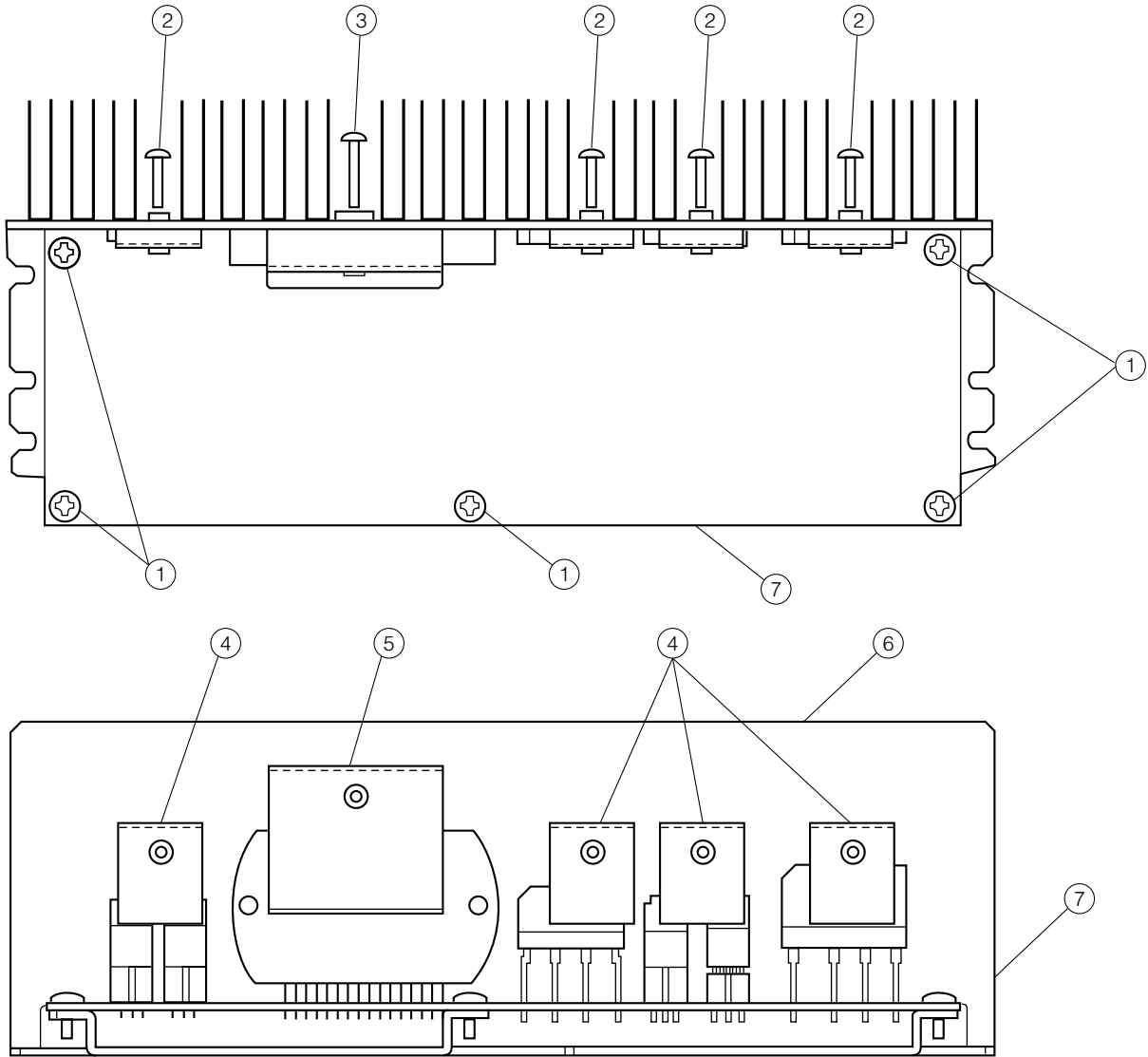


REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
△	VN474900	AC Cord Assembly	J	J P-200		09
△	VN475000	AC Cord Assembly	UL	U		09
△	VN475200	AC Cord Assembly	CEE	E		09
△	VN475300	AC Cord Assembly	BS	B		11
1	VR779100	AC Cord	J 2P 7A 3.0M	J		01
△	1	VP276200	AC Cord	UC 2P 10A 3.05M		06
△	1	VD846300	AC Cord	CE 2P 2.5A 3.05M		05
△	1	VH895700	AC Cord	BS 2P 6.0A 3.05M		09
2	CB032840	Cord Strain Relief	SR-5N-4	J,U		03
2	CB072750	Cord Strain Relief	SR-4N-4	E,B		01
3	VN444500	Cord Holder	P-100			04
4	LB015040	Connector Housing	VH- 4P		2	01
5	LB101710	Connector Pin	SVH-21T-P1.1			01

*: New Parts

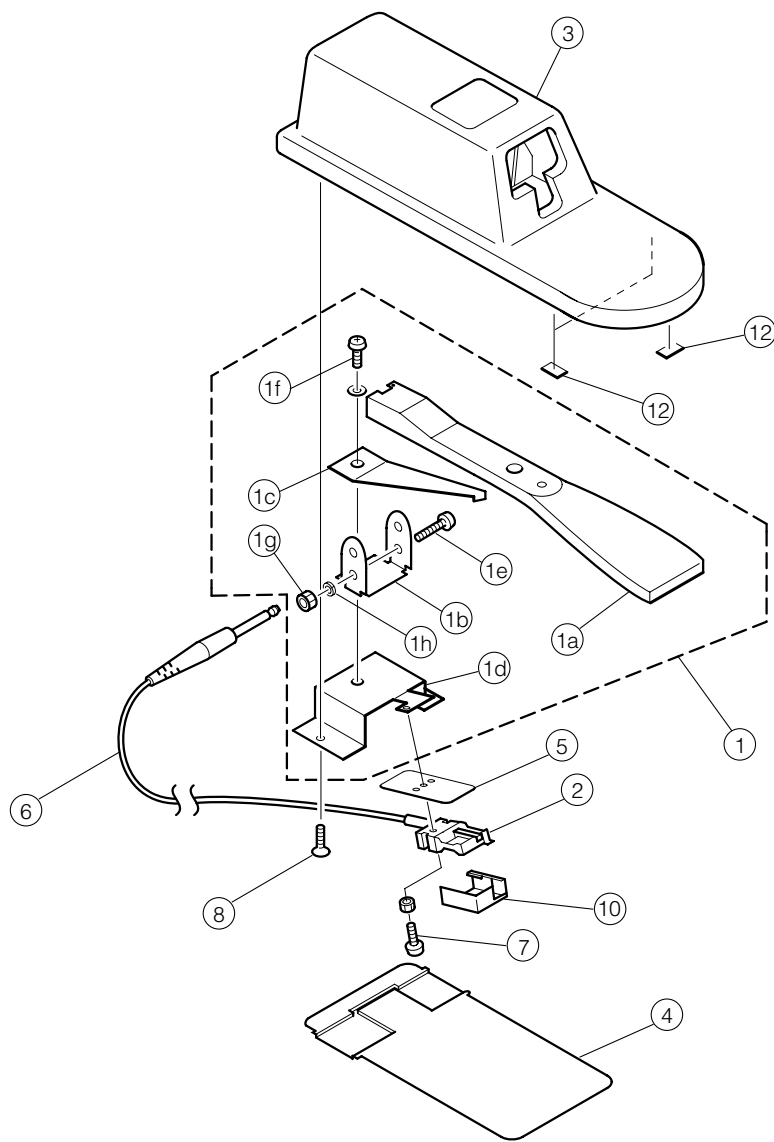
RANK:Japan only

MA60 CIRCUIT BOARD ASSEMBLY



REF.NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
	VT765300	CIRCUIT BOARD ASSEMBLY	MA60 J,U	J,U P-200		22
	VT765500	CIRCUIT BOARD ASSEMBLY	MA60 E,N	E,B		22
1	EP640410	Bind Head Tapping Screw-B	4.0 x 8 MFZN2Y		5	01
2	EP600220	Bind Head Tapping Screw-B	3.0 x 10 MFZN2Y		4	01
3	EP600390	Bind Head Tapping Screw-B	3.0 x 16 MFZN2Y			01
4	VT461100	Transistor Holder	A		4	03
5	VT461200	Transistor Holder	B			03
6	VT444300	Heat Sink				11
7	VT143900	Circuit Board	MA60 J,U	J,U		
7	VT144000	Circuit Board	MA60 E,GBR,N	E,B		
8	VT745800	Vibration-proof Tape	10 x 180 x T0.25		2	

SUSTAIN PEDAL



REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
	—	SUSTAIN PEDAL	FC4	P-200 (VT37300)		
1	NB805010	Pedal Assembly				10
1a	AA803240	Pedal				05
1b	AA803250	Holder, Pedal				02
1c	AA803260	Spring				04
1d	AA803270	Frame				05
1e	VE439100	Hexagonal Bolt	5.0 x 40 MFZN2Y			01
1f	EA050206	Pan Head Screw	5.0 x 20 MFZN2Y	(0375146)		01
1g	EX802810	Hexagonal Nut	#1 JIS 5.0 MFZN2Y	(0376030)		
1h	EV300050	Spring Washer	#2 5.0 MFZN2B	(0376687)	2	01
2	NB037140	Switch Assembly				05
3	CB806740	Pedal Box	CP-30			07
4	CB806750	Bottom Board	CP-30			04
5	CA800450	Fiber Washer				01
6	MI801570	Cord Assembly	1.9m 6.3			05
7	EE630060	Pan Head Screw	3.0 x 12 MFZN2Y			01
8	EC030070	Flat Head Screw	3.0 x 8 MFZN2Y		2	01
10	CB808360	Switch Cover				01
12	CB808790	Stopper			3	01

*: New Parts

RANK:Japan only

ELECTRICAL PARTS

REF. NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
		ELECTRICAL PARTS		P-200		
*	VZ885500	Circuit Board	DM	(XU104B0)		
	VT458600	Circuit Board	FU60P J,U	J,U (XQ670B0)		09
*	VT458700	Circuit Board	FU60P E,GBR	E,B (XQ670B0)		09
*	VZ705200	Circuit Board	GH-D SW (L)	(XT240A0)		
*	VZ705300	Circuit Board	GH-D SW (H)	(XT241A0)		
	VT833700	Circuit Board	HP	(XE779B0)		08
	VT143900	Circuit Board	MA60 J,U	J,U (XQ393E0) (XQ778E0)		
	VT144000	Circuit Board	MA60 E,GBR,N	E,B (XQ393E0) (XQ778E0)		
	VT360500	Circuit Board	MJ	(XQ652C0)		17
	VT360000	Circuit Board	PN1	(XQ653C0)		11
	VT360100	Circuit Board	PN2	(XQ653C0)		10
	VT360200	Circuit Board	PN3	(XQ653C0)		09
*	VT360300	Circuit Board	PN4	(XQ653C0)		09
	VZ885500	Circuit Board	DM	(XU104B0)		
BAT01	VN103600	Battery Holder	CR2032			03
CN001	VB389900	Connector Base Post	PH- 3P TE			01
CN002	LB918050	Base Post Connector	XH 5P TE			01
CN003	VB390600	Connector Base Post	PH-10P TE			01
CN004	VB390400	Connector Base Post	PH- 8P TE			01
CN005	VB390500	Connector Base Post	PH- 9P TE			03
CN006	VF283100	Connector Base Post	PH-13P TE			01
CN007	VB390700	Connector Base Post	PH-11P TE			01
CN008	VB390800	Connector Base Post	PH-12P TE			01
CN009	VB390200	Connector Base Post	PH- 6P TE			01
CN010	VB390100	Connector Base Post	PH- 5P TE			01
CN011	VB390300	Connector Base Post	PH- 7P TE			01
CN012	VF283300	Connector Base Post	PH-15P TE			01
CN013	LB918040	Base Post Connector	XH 4P TE			01
CN014	VB390600	Connector Base Post	PH-10P TE			01
CR001	VP864900	Quartz Crystal Unit	16M SMD-49			04
CR002	VP864800	Quartz Crystal Unit	11.2896M SMD-49			04
C0001	US145100	Ceramic Capacitor-F (chip)	0.1000 25V Z			01
C0002	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0003	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0004	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0005	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0006	US145100	Ceramic Capacitor-F (chip)	0.1000 25V Z			01
C0007	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0008	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0009	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0010	US145100	Ceramic Capacitor-F (chip)	0.1000 25V Z			01
C0011	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0012	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K			01
C0013	US062100	Ceramic Capacitor-SL (chip)	100P 50V J			01
C0014	US062100	Ceramic Capacitor-SL (chip)	100P 50V J			01
C0015	US062100	Ceramic Capacitor-SL (chip)	100P 50V J			01
C0016	US062100	Ceramic Capacitor-SL (chip)	100P 50V J			01
C0017	US062100	Ceramic Capacitor-SL (chip)	100P 50V J			01
C0018	US062100	Ceramic Capacitor-SL (chip)	100P 50V J			01
C0019	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K			01
C0020	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0021	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0022	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0023	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0024	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0025	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0026	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0027	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0028	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0029	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0030	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0031	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0032	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0033	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0034	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0035	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0036	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0037	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01

*: New Parts

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REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
C0038	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0039	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0040	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0041	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0042	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0043	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0044	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0045	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0046	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0047	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0048	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0049	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0050	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0051	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0052	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K			01
C0053	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K			01
C0054	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0055	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0056	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K			01
C0057	UF037100	Electrolytic Cap. (chip)	10 16V			01
C0058	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K			01
C0059	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K			01
C0060	US061120	Ceramic Capacitor-CH (chip)	12P 50V J			01
C0061	US061120	Ceramic Capacitor-CH (chip)	12P 50V J			01
C0062	US061470	Ceramic Capacitor-CH (chip)	47P 50V J			01
C0063	US061470	Ceramic Capacitor-CH (chip)	47P 50V J			01
C0064	US145100	Ceramic Capacitor-F (chip)	0.1000 25V Z			01
C0065	UF038100	Electrolytic Cap. (chip)	100 16V			01
C0067	US145100	Ceramic Capacitor-F (chip)	0.1000 25V Z			01
C0068	US145100	Ceramic Capacitor-F (chip)	0.1000 25V Z			01
C0069	US145100	Ceramic Capacitor-F (chip)	0.1000 25V Z			01
C0070	US145100	Ceramic Capacitor-F (chip)	0.1000 25V Z			01
C0071	US145100	Ceramic Capacitor-F (chip)	0.1000 25V Z			01
C0072	US145100	Ceramic Capacitor-F (chip)	0.1000 25V Z			01
C0073	US145100	Ceramic Capacitor-F (chip)	0.1000 25V Z			01
C0074	US145100	Ceramic Capacitor-F (chip)	0.1000 25V Z			01
C0075	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K			01
C0076	UF038100	Electrolytic Cap. (chip)	100 16V			01
C0077	US145100	Ceramic Capacitor-F (chip)	0.1000 25V Z			01
C0078	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0079	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0080	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0081	US145100	Ceramic Capacitor-F (chip)	0.1000 25V Z			01
C0082	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K			01
C0083	UF037100	Electrolytic Cap. (chip)	10 16V			01
C0084	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K			01
C0085	UF038100	Electrolytic Cap. (chip)	100 16V			01
C0086	UF038100	Electrolytic Cap. (chip)	100 16V			01
C0087	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K			01
C0088	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K			01
C0089	UF148100	Electrolytic Cap. (chip)	100 25V			01
C0090	UF148100	Electrolytic Cap. (chip)	100 25V			01
C0091	UF138330	Electrolytic Cap. (chip)	330 16V UUR1C3			01
C0092	UF138330	Electrolytic Cap. (chip)	330 16V UUR1C3			01
C0093	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K			01
C0094	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K			01
C0095	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K			01
C0096	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K			01
C0097	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K			01
C0098	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K			01
C0099	US145100	Ceramic Capacitor-F (chip)	0.1000 25V Z			01
C0100	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K			01
C0101	UF038100	Electrolytic Cap. (chip)	100 16V			01
C0102	US061220	Ceramic Capacitor-CH (chip)	22P 50V J			01
C0103	US061220	Ceramic Capacitor-CH (chip)	22P 50V J			01
C0106	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K			01
C0107	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K			01
C0108	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K			01
C0109	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K			01
C0110	US145100	Ceramic Capacitor-F (chip)	0.1000 25V Z			01

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REF.NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
C0111	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K			01
C0112	UF318100	Electrolytic Cap. (chip)	100 16V			01
C0113	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K			01
C0114	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K			01
C0116	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K			01
C0117	US145100	Ceramic Capacitor-F (chip)	0.1000 25V Z			01
C0118	US145100	Ceramic Capacitor-F (chip)	0.1000 25V Z			01
C0119	UF038100	Electrolytic Cap. (chip)	100 16V			01
C0120	US145100	Ceramic Capacitor-F (chip)	0.1000 25V Z			01
C0121	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K			01
C0122	UF038100	Electrolytic Cap. (chip)	100 16V			01
C0123	US145100	Ceramic Capacitor-F (chip)	0.1000 25V Z			01
C0124	US145100	Ceramic Capacitor-F (chip)	0.1000 25V Z			01
C0125	UE037220	Electrolytic Cap. (chip)	22 16V RV2			01
C0126	UF038100	Electrolytic Cap. (chip)	100 16V			01
C0127	UF037470	Electrolytic Cap. (chip)	47 16V			01
C0128	US063180	Ceramic Capacitor-B (chip)	1800P 50V K			01
C0129	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0130	US062220	Ceramic Capacitor-SL (chip)	220P 50V J			01
C0131	UE146470	Electrolytic Cap.-BP (chip)	4.7 25V RV2BP			01
C0132	UE037220	Electrolytic Cap. (chip)	22 16V RV2			01
C0133	UF038100	Electrolytic Cap. (chip)	100 16V			01
C0134	UF037470	Electrolytic Cap. (chip)	47 16V			01
C0135	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K			01
C0136	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K			01
C0137	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K			01
C0138	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K			01
C0139	US063180	Ceramic Capacitor-B (chip)	1800P 50V K			01
C0140	US062470	Ceramic Capacitor-SL (chip)	470P 50V J			01
C0141	US062220	Ceramic Capacitor-SL (chip)	220P 50V J			01
C0142	UE146470	Electrolytic Cap.-BP (chip)	4.7 25V RV2BP			01
C0143	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K			01
C0144	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K			01
C0150	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K			01
C0151	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K			01
C0152	US145100	Ceramic Capacitor-F (chip)	0.1000 25V Z			01
C0153	US062100	Ceramic Capacitor-SL (chip)	100P 50V J			01
C0154	US062100	Ceramic Capacitor-SL (chip)	100P 50V J			01
C0155	US145100	Ceramic Capacitor-F (chip)	0.1000 25V Z			01
C0156	US145100	Ceramic Capacitor-F (chip)	0.1000 25V Z			01
D0001	VV925900	Diode	RLS-73			01
D0002	VV925900	Diode	RLS-73			01
D0003	VV925900	Diode	RLS-73			01
D0004	VV925900	Diode	RLS-73			01
D0005	VV925900	Diode	RLS-73			01
FB001	VS740100	Chip Inductance	BLM21B751S 2125			03
FB002	VS740100	Chip Inductance	BLM21B751S 2125			03
FB003	VS740100	Chip Inductance	BLM21B751S 2125			03
FB004	VS740100	Chip Inductance	BLM21B751S 2125			03
FB005	VR243700	Chip Inductance	56U LEM2520 T 560J			01
FB008	VR243700	Chip Inductance	56U LEM2520 T 560J			01
FB010	VR243700	Chip Inductance	56U LEM2520 T 560J			01
FB011	VR243700	Chip Inductance	56U LEM2520 T 560J			01
FB012	VR243700	Chip Inductance	56U LEM2520 T 560J			01
FB013	VR243700	Chip Inductance	56U LEM2520 T 560J			01
FB014	VR243700	Chip Inductance	56U LEM2520 T 560J			01
FB015	VR243700	Chip Inductance	56U LEM2520 T 560J			01
FB016	VR243700	Chip Inductance	56U LEM2520 T 560J			01
FB017	VR243700	Chip Inductance	56U LEM2520 T 560J			01
FB018	VS740100	Chip Inductance	BLM21B751S 2125			03
FB019	VS740100	Chip Inductance	BLM21B751S 2125			03
FB020	VR243700	Chip Inductance	56U LEM2520 T 560J			01
FB021	VS740100	Chip Inductance	BLM21B751S 2125			03
FB022	VS740100	Chip Inductance	BLM21B751S 2125			03
FB023	VS740100	Chip Inductance	BLM21B751S 2125			03
FB024	VS740100	Chip Inductance	BLM21B751S 2125			03
FB025	VS740100	Chip Inductance	BLM21B751S 2125			03
FB026	VS740100	Chip Inductance	BLM21B751S 2125			03
FB027	VS740100	Chip Inductance	BLM21B751S 2125			03
FB028	VS740100	Chip Inductance	BLM21B751S 2125			03

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REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
FB029	VS740100	Chip Inductance	BLM21B751S 2125			03
FB030	VS740100	Chip Inductance	BLM21B751S 2125			03
FB031	VS740100	Chip Inductance	BLM21B751S 2125			03
FB032	VS740100	Chip Inductance	BLM21B751S 2125			03
FB033	RD250000	Carbon Resistor (chip)	0.0 0.0 J			01
FB034	RD250000	Carbon Resistor (chip)	0.0 0.0 J			01
FB035	RD250000	Carbon Resistor (chip)	0.0 0.0 J			01
FB036	VS740100	Chip Inductance	BLM21B751S 2125			03
FB037	VS740100	Chip Inductance	BLM21B751S 2125			03
FB038	VS740100	Chip Inductance	BLM21B751S 2125			03
FB039	VS740100	Chip Inductance	BLM21B751S 2125			03
FB040	VS740100	Chip Inductance	BLM21B751S 2125			03
FB041	VS740100	Chip Inductance	BLM21B751S 2125			03
FB042	VS740100	Chip Inductance	BLM21B751S 2125			03
FB043	VS740100	Chip Inductance	BLM21B751S 2125			03
FB044	VS740100	Chip Inductance	BLM21B751S 2125			03
FB045	VS740100	Chip Inductance	BLM21B751S 2125			03
FB046	VS740100	Chip Inductance	BLM21B751S 2125			03
FB047	VS740100	Chip Inductance	BLM21B751S 2125			03
FB048	VS740100	Chip Inductance	BLM21B751S 2125			03
FB049	VS740100	Chip Inductance	BLM21B751S 2125			03
FB060	VS740100	Chip Inductance	BLM21B751S 2125			03
FB061	VS740100	Chip Inductance	BLM21B751S 2125			03
IC001	XQ375A00	IC	HD6413002FP16	CPU		09
* IC002	XU382300	IC	KM23C4200D-10	PROGRAM 4M		
IC002	VK405200	IC Socket	DICF-40CS-E			03
IC003	XQ170A00	IC	UPD43256BGU-85LL-E	SRAM 256K		08
IC004	XJ752C00	IC	YMW259	GEW9-F		17
IC005	XJ752C00	IC	YMW259	GEW9-F		17
* IC006	XT998A00	IC	LH535K	WAVE ROM1		
* IC007	XT999A00	IC	LH535K	WAVE ROM2		
* IC008	XT998A00	IC	LH535K	WAVE ROM1		
* IC009	XT999A00	IC	LH535K	WAVE ROM2		
IC010	XI816A00	IC	YSS208	DSP		13
IC011	XI816A00	IC	YSS208	DSP		13
IC012	XQ545A00	IC	LH5P832N-10	PS-RAM 256K		07
IC013	XQ545A00	IC	LH5P832N-10	PS-RAM 256K		07
IC014	XQ042A00	IC	SN74HC374ANSR	D-FF		03
IC015	XQ042A00	IC	SN74HC374ANSR	D-FF		03
IC016	XC727A00	IC	SN74HC139NSR	DECODER		02
IC017	XK452A00	IC	HD74AC32FPEL	OR		02
IC018	XF291A00	IC	UPC4570G2	OP AMP		03
IC019	XL112A00	IC	SN74HC132NS-R	NAND		03
IC020	XQ042A00	IC	SN74HC374ANSR	D-FF		03
IC021	XM182A00	IC	TC7S04F	INVERTER		01
IC022	XK452A00	IC	HD74AC32FPEL	OR		02
IC023	XK837A00	IC	SN74HC4066NSR	SWITCH		02
IC024	XN086A00	IC	NJM79L05UA	REGULATOR		02
IC025	XJ598A00	IC	NJM78L05UA	REGULATOR		02
IC026	XM182A00	IC	TC7S04F	INVERTER		01
IC027	XM182A00	IC	TC7S04F	INVERTER		01
IC029	XE862B00	IC	YM3422B	ESI		05
IC030	XP551A00	IC	PCM1702U	D/A CONVERTER		08
IC031	XP551A00	IC	PCM1702U	D/A CONVERTER		08
IC032	XF291A00	IC	UPC4570G2	OP AMP		03
IC033	XF291A00	IC	UPC4570G2	OP AMP		03
PC001	VR903700	Photo Coupler	HCPL-M600			04
R0001	RD355100	Carbon Resistor (chip)	100 63M J			01
R0002	RD355100	Carbon Resistor (chip)	100 63M J			01
R0003	RD355100	Carbon Resistor (chip)	100 63M J			01
R0004	RD355220	Carbon Resistor (chip)	220 63M J			01
R0005	RD355220	Carbon Resistor (chip)	220 63M J			01
R0006	RD355220	Carbon Resistor (chip)	220 63M J			01
R0007	RD355220	Carbon Resistor (chip)	220 63M J			01
R0008	RD355220	Carbon Resistor (chip)	220 63M J			01
R0009	RD356150	Carbon Resistor (chip)	1.5K 63M J			01
R0010	RD357220	Carbon Resistor (chip)	22K 63M J			01
R0011	RD356150	Carbon Resistor (chip)	1.5K 63M J			01
R0012	RD357220	Carbon Resistor (chip)	22K 63M J			01
R0013	RD357100	Carbon Resistor (chip)	10K 63M J			01

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REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
R0084	RD355220	Carbon Resistor (chip)	220 63M J			01
R0085	RD355220	Carbon Resistor (chip)	220 63M J			01
R0086	RD355220	Carbon Resistor (chip)	220 63M J			01
R0087	RD355220	Carbon Resistor (chip)	220 63M J			01
R0088	RD355220	Carbon Resistor (chip)	220 63M J			01
R0089	RD355220	Carbon Resistor (chip)	220 63M J			01
R0090	RD355220	Carbon Resistor (chip)	220 63M J			01
R0091	RD355220	Carbon Resistor (chip)	220 63M J			01
R0092	RD355220	Carbon Resistor (chip)	220 63M J			01
R0093	RD355220	Carbon Resistor (chip)	220 63M J			01
R0094	RD355220	Carbon Resistor (chip)	220 63M J			01
R0095	RD355220	Carbon Resistor (chip)	220 63M J			01
R0096	RD355220	Carbon Resistor (chip)	220 63M J			01
R0097	RD357100	Carbon Resistor (chip)	10K 63M J			01
R0098	RD357100	Carbon Resistor (chip)	10K 63M J			01
R0099	RD357100	Carbon Resistor (chip)	10K 63M J			01
R0100	RD357100	Carbon Resistor (chip)	10K 63M J			01
R0101	RD359100	Carbon Resistor (chip)	1.0M 63M J			01
R0102	RD356180	Carbon Resistor (chip)	1.8K 63M J			01
R0103	RD357100	Carbon Resistor (chip)	10K 63M J			01
R0104	RD357100	Carbon Resistor (chip)	10K 63M J			01
R0105	RD356100	Carbon Resistor (chip)	1.0K 63M J			01
R0106	RD356100	Carbon Resistor (chip)	1.0K 63M J			01
R0107	RD356100	Carbon Resistor (chip)	1.0K 63M J			01
R0108	RD356100	Carbon Resistor (chip)	1.0K 63M J			01
R0109	RD356100	Carbon Resistor (chip)	1.0K 63M J			01
R0110	RD356100	Carbon Resistor (chip)	1.0K 63M J			01
R0111	RD356100	Carbon Resistor (chip)	1.0K 63M J			01
R0112	RD357470	Carbon Resistor (chip)	47K 63M J			01
R0113	RD357470	Carbon Resistor (chip)	47K 63M J			01
R0114	RD357470	Carbon Resistor (chip)	47K 63M J			01
R0115	RD357470	Carbon Resistor (chip)	47K 63M J			01
R0116	RD357470	Carbon Resistor (chip)	47K 63M J			01
R0117	RD357470	Carbon Resistor (chip)	47K 63M J			01
R0118	RD358470	Carbon Resistor (chip)	470K 63M J			01
R0120	RD355100	Carbon Resistor (chip)	100 63M J			01
R0121	VI197400	Carbon Resistor (chip)	10.0K 1/10 D			01
R0122	VI197400	Carbon Resistor (chip)	10.0K 1/10 D			01
R0123	RD357100	Carbon Resistor (chip)	10K 63M J			01
R0124	RD356100	Carbon Resistor (chip)	1.0K 63M J			01
R0125	RD357220	Carbon Resistor (chip)	22K 63M J			01
R0126	RD358470	Carbon Resistor (chip)	470K 63M J			01
R0127	RD357100	Carbon Resistor (chip)	10K 63M J			01
R0128	RD356220	Carbon Resistor (chip)	2.2K 63M J			01
R0129	RD357100	Carbon Resistor (chip)	10K 63M J			01
R0130	RD357220	Carbon Resistor (chip)	22K 63M J			01
R0131	RD358470	Carbon Resistor (chip)	470K 63M J			01
R0132	RD255150	Carbon Resistor (chip)	150.0 0.1 J			01
R0133	RD255150	Carbon Resistor (chip)	150.0 0.1 J			01
R0134	RD255150	Carbon Resistor (chip)	150.0 0.1 J			01
R0135	RD255150	Carbon Resistor (chip)	150.0 0.1 J			01
R0136	RD356100	Carbon Resistor (chip)	1.0K 63M J			01
R0137	RD250000	Carbon Resistor (chip)	0.0 0.0 J			01
R0138	RD250000	Carbon Resistor (chip)	0.0 0.0 J			01
R0139	RD355100	Carbon Resistor (chip)	100 63M J			01
R0140	RD355100	Carbon Resistor (chip)	100 63M J			01
R0141	RD355220	Carbon Resistor (chip)	220 63M J			01
R0142	RD355220	Carbon Resistor (chip)	220 63M J			01
R0144	RD356560	Carbon Resistor (chip)	5.6K 63M J			01
R0145	RD356220	Carbon Resistor (chip)	2.2K 63M J			01
R0146	RD357100	Carbon Resistor (chip)	10K 63M J			01
R0147	RD357100	Carbon Resistor (chip)	10K 63M J			01
R0148	RD355100	Carbon Resistor (chip)	100 63M J			01
R0149	RD356560	Carbon Resistor (chip)	5.6K 63M J			01
R0150	RD356220	Carbon Resistor (chip)	2.2K 63M J			01
R0151	RD357100	Carbon Resistor (chip)	10K 63M J			01
R0152	RD357100	Carbon Resistor (chip)	10K 63M J			01
R0153	RD355100	Carbon Resistor (chip)	100 63M J			01
R0154	RD250000	Carbon Resistor (chip)	0.0 0.0 J			01
R0155	RD250000	Carbon Resistor (chip)	0.0 0.0 J			01

*: New Parts

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REF.NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
R0156	RD355220	Carbon Resistor (chip)	220 63M J			01
R0157	RD357100	Carbon Resistor (chip)	10K 63M J			01
R0158	RD354100	Carbon Resistor (chip)	10 63M J			01
R0159	RD354100	Carbon Resistor (chip)	10 63M J			01
R0160	RD355220	Carbon Resistor (chip)	220 63M J			01
R0161	RD355220	Carbon Resistor (chip)	220 63M J			01
SN001	VQ332000	Chip Inductance	5.0U SF-M0520(T)			03
SN002	VQ332000	Chip Inductance	5.0U SF-M0520(T)			03
SN003	VQ332000	Chip Inductance	5.0U SF-M0520(T)			03
TA001	XN153A00	IC	TD62083F-TP1	DRIVER ARRAY		04
TA002	VT943400	Transistor Array	TD62785F(TP1)			04
TR001	VV556400	Transistor	2SC2412K Q,R,S			01
TR002	VJ927200	Transistor	2SA1162 O,Y			01
TR003	VV556400	Transistor	2SC2412K Q,R,S			01
TR004	VV556400	Transistor	2SC2412K Q,R,S			01
TR005	VV556400	Transistor	2SC2412K Q,R,S			01
TR006	VV556400	Transistor	2SC2412K Q,R,S			01
	VT458600	Circuit Board	FU60P J,U	J,U (XQ670B0)		09
	VT458700	Circuit Board	FU60P E,GBR	E,B (XQ670B0)		09
	LB201530	Fuse Holder	PC-PH1			01
	VD041700	Jumper Wire	0.55			
C0001	VT575200	Capacitor	0.01 400V J.U.C.S			01
C0002	FI383470	Capacitor	4700P 400V U.C.S.V			01
C0003	FI383470	Capacitor	4700P 400V U.C.S.V			01
CN001	LB932030	Base Post Connector	VH- 3P TE			01
CN002	LB932040	Base Post Connector	VH- 4P TE			01
CN003	LB932060	Base Post Connector	VH- 6P TE			01
△ F0001	KB003590	Fuse	3.00A JU	J,U		01
△ F0001	KB003060	Fuse	1.60A S	E,B		01
L0003	VF790900	Coil	SU10V-D20010			03
*	VZ705200	Circuit Board	GH-D SW (L)		(XT240A0)	
	XR632A00	IC	YMZ702-D	KSN2		09
	VB390400	Connector Base Post	PH- 8P TE			01
	VB390500	Connector Base Post	PH- 9P TE			03
	VB390800	Connector Base Post	PH-12P TE			01
	VB941200	Diode	1SS133,1SS176			01
	— —	Dust Proof Cloth			(VU45960)	
C1	FG644100	Ceramic Capacitor-F	0.0100 50V Z			01
C2	FG644100	Ceramic Capacitor-F	0.0100 50V Z			01
C3	FG644100	Ceramic Capacitor-F	0.0100 50V Z			01
C5	VF760000	Electrolytic Cap.	100.00 10.0V			01
J1	VD041700	Jumper Wire	0.55			
J2	VD041700	Jumper Wire	0.55			
R1	HF759100	Carbon Resistor	1.0M 1/4 J			01
R2	HF755100	Carbon Resistor	100.0 1/4 J			01
R3	HF755100	Carbon Resistor	100.0 1/4 J			01
R4	HF756100	Carbon Resistor	1.0K 1/4 J			01
CL1	VI653000	Ceramic Resonator	CST4.00MGW040			01
RA1	VU483500	Resistor Array	RGLD12X103J			01
*	VZ705300	Circuit Board	GH-D SW (H)		(XT241A0)	
	VB390500	Connector Base Post	PH- 9P TE			03
	VB390800	Connector Base Post	PH-12P TE			01
	VB941200	Diode	1SS133,1SS176			01
	— —	Dust Proof Cloth			(VU45980)	
	VT833700	Circuit Board	HP		(XE779B0)	08
	LB101870	Phone Jack	JACK YKB21-5006	PHONES		03
	— —	Connector Assembly	EARTH 60mm		(VG60540)	
C1	FG444100	Ceramic Capacitor-F	0.0100 50V Z			01
C2	FG444100	Ceramic Capacitor-F	0.0100 50V Z			01
C3	VE659000	Semiconductive Cera. Cap.	0.1000 25V Z			01
L1	VB971100	Coil	FL5R200QN			01
L2	VB971100	Coil	FL5R200QN			01
L3	VB971100	Coil	FL5R200QN			01
CN1	LB919070	Base Post Connector	XH 7P SE			01
*	VT143900	Circuit Board	MA60 J,U	J,U (XQ393E0) (XQ778E0)		

*: New Parts

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REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
	VT443500	Support, PCB	T=8			03
	VT740000	Support, PCB	3T-9 T=9			03
	VJ834500	Insulation Sheet	#1000			03
	VD041700	Jumper Wire	0.55			
CN001	LB932050	Base Post Connector	VH- 5P TE			01
CN003	LB918030	Base Post Connector	XH 3P TE TE			01
CN004	VB390300	Connector Base Post	PH- 7P TE			01
CN005	LB932040	Base Post Connector	VH- 4P TE			01
CN006	VB390500	Connector Base Post	PH- 9P TE			03
C0001	VA302600	Ceramic Capacitor-E	0.0100 500V P			01
C0003	VU642700	Electrolytic Cap.	4700 16.0V			03
* C0003	V0069900	Electrolytic Cap.	4700 16.0V			
C0004	VU642700	Electrolytic Cap.	4700 16.0V			03
* C0004	V0069900	Electrolytic Cap.	4700 16.0V			
C0005	VL232400	Electrolytic Cap.	3300 35.0V			04
C0006	VL232400	Electrolytic Cap.	3300 35.0V			04
C0007	VL232400	Electrolytic Cap.	3300 35.0V			04
C0008	VL232400	Electrolytic Cap.	3300 35.0V			04
C0009	UJ866100	Electrolytic Cap.	1.00 50.0V			01
C0010	UJ866100	Electrolytic Cap.	1.00 50.0V			01
C0011	UJ866100	Electrolytic Cap.	1.00 50.0V			01
C0012	FG613100	Ceramic Capacitor-B	1000P 50V K			01
C0013	UJ838100	Electrolytic Cap.	100.00 16.0V			01
C0016	UJ866100	Electrolytic Cap.	1.00 50.0V			01
C0017	VC694800	Semiconductive Cera. Cap.	0.1000 25V Z			01
C0018	UJ866100	Electrolytic Cap.	1.00 50.0V			01
C0019	UJ866100	Electrolytic Cap.	1.00 50.0V			01
C0020	UJ868100	Electrolytic Cap.	100.00 50.0V			01
C0021	UJ868100	Electrolytic Cap.	100.00 50.0V			01
C0022	FG613100	Ceramic Capacitor-B	1000P 50V K			01
C0023	UJ866100	Electrolytic Cap.	1.00 50.0V			01
C0024	UJ838100	Electrolytic Cap.	100.00 16.0V			01
C0025	VC694800	Semiconductive Cera. Cap.	0.1000 25V Z			01
C0026	VC694800	Semiconductive Cera. Cap.	0.1000 25V Z			01
C0027	FG613100	Ceramic Capacitor-B	1000P 50V K			01
C0028	UJ866100	Electrolytic Cap.	1.00 50.0V			01
C0029	UJ838100	Electrolytic Cap.	100.00 16.0V			01
C0030	VC694800	Semiconductive Cera. Cap.	0.1000 25V Z			01
C0031	VC694800	Semiconductive Cera. Cap.	0.1000 25V Z			01
C0032	UJ838100	Electrolytic Cap.	100.00 16.0V			01
C0033	UJ866330	Electrolytic Cap.	3.30 50.0V			01
DB001	VK421800	Diode Stack	D5SBA20 6.0A 200V			03
DB002	VQ111500	Diode Stack	D3SBA20-4103 4.0A			03
D0001	VB481900	Diode	11ES4			01
D0002	VB481900	Diode	11ES4			01
D0003	VB481900	Diode	11ES4			01
D0004	VB481900	Diode	11ES4			01
D0005	VB481900	Diode	11ES4			01
FUHOL	VP206500	Fuse Holder	CLIP EYF-52BC			01
F0001	KB003630	Fuse	5.00A JU			01
F0002	KB003630	Fuse	5.00A JU			01
F0003	KB003630	Fuse	5.00A JU			01
IC001	XQ437A00	IC	SI-3051N	REGULATOR +5V		03
IC002	XQ667A00	IC	M5237L	REGULATOR		02
IC003	XJ602A00	IC	NJM78M12FA	REGULATOR +12V		02
IC004	XD343A00	IC	NJM79M12FA	REGULATOR -12V		03
IC005	XL972A00	IC	STK401-040	POWER AMP		08
J0003	VD041700	Jumper Wire	0.55			
J0004	VD041700	Jumper Wire	0.55			
RY001	VK881200	Relay	DC G5Z-2A-YA			04
R0003	HF756100	Carbon Resistor	1.0K 1/4 J			01
R0004	HF755220	Carbon Resistor	220.0 1/4 J			01
R0005	HF754560	Carbon Resistor	56.0 1/4 J			01
R0006	HF757100	Carbon Resistor	10.0K 1/4 J			01
R0007	HF756330	Carbon Resistor	3.3K 1/4 J			01
R0008	HW095100	Fuse Resistor	100.0 1/4 J			01
R0009	HW095100	Fuse Resistor	100.0 1/4 J			01
R0010	HF755560	Carbon Resistor	560.0 1/4 J			01
R0011	HF757100	Carbon Resistor	10.0K 1/4 J			01
R0012	HF755560	Carbon Resistor	560.0 1/4 J			01

*: New Parts

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REF.NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
R0013	HF757100	Carbon Resistor	10.0K 1/4 J			01
R0014	VC742500	Metal Oxide Film Resistor	10.0 1W J			01
R0015	HF757100	Carbon Resistor	10.0K 1/4 J			01
R0016	HF755560	Carbon Resistor	560.0 1/4 J			01
R0017	HF757100	Carbon Resistor	10.0K 1/4 J			01
R0018	HF755560	Carbon Resistor	560.0 1/4 J			01
R0019	HF757100	Carbon Resistor	10.0K 1/4 J			01
R0020	VC742500	Metal Oxide Film Resistor	10.0 1W J			01
R0021	HF757100	Carbon Resistor	10.0K 1/4 J			01
R0022	HF756330	Carbon Resistor	3.3K 1/4 J			01
R0023	HF756330	Carbon Resistor	3.3K 1/4 J			01
TR001	VJ828100	Transistor	2SA1451 O.Y			04
TR002	IC1815M0	Transistor	2SC1815 Y,GR			01
TR003	IC1815M0	Transistor	2SC1815 Y,GR			01
TR004	IC1815M0	Transistor	2SC1815 Y,GR			01
	VT144000	Circuit Board	MA60 E,GBR,N	E,B (XQ393E0) (XQ778E0)		
	VT443500	Support, PCB	T=8			03
	VT740000	Support, PCB	3T-9			03
	VJ834500	Insulation Sheet	#1000			03
	VD041700	Jumper Wire	0.55			
CN001	LB932050	Base Post Connector	VH- 5P TE			01
CN003	LB918030	Base Post Connector	XH 3P TE			01
CN004	VB390300	Connector Base Post	PH- 7P TE			01
CN005	LB932040	Base Post Connector	VH- 4P TE			01
CN006	VB390500	Connector Base Post	PH- 9P TE			03
C0001	VA302600	Ceramic Capacitor-E	0.0100 500V P			01
C0003	VU642700	Electrolytic Cap.	4700 16.0V			03
* C0003	V0069900	Electrolytic Cap.	4700 16.0V			
C0004	VU642700	Electrolytic Cap.	4700 16.0V			03
* C0004	V0069900	Electrolytic Cap.	4700 16.0V			
C0005	VL232400	Electrolytic Cap.	3300 35.0V			04
C0006	VL232400	Electrolytic Cap.	3300 35.0V			04
C0007	VL232400	Electrolytic Cap.	3300 35.0V			04
C0008	VL232400	Electrolytic Cap.	3300 35.0V			04
C0009	UJ866100	Electrolytic Cap.	1.00 50.0V			01
C0010	UJ866100	Electrolytic Cap.	1.00 50.0V			01
C0011	UJ866100	Electrolytic Cap.	1.00 50.0V			01
C0012	FG613100	Ceramic Capacitor-B	1000P 50V K			01
C0013	UJ838100	Electrolytic Cap.	100.00 16.0V			01
C0016	UJ866100	Electrolytic Cap.	1.00 50.0V			01
C0017	VC694800	Semiconductive Cera. Cap.	0.1000 25V Z			01
C0018	UJ866100	Electrolytic Cap.	1.00 50.0V			01
C0019	UJ866100	Electrolytic Cap.	1.00 50.0V			01
C0020	UJ868100	Electrolytic Cap.	100.00 50.0V			01
C0021	UJ868100	Electrolytic Cap.	100.00 50.0V			01
C0022	FG613100	Ceramic Capacitor-B	1000P 50V K			01
C0023	UJ866100	Electrolytic Cap.	1.00 50.0V			01
C0024	UJ838100	Electrolytic Cap.	100.00 16.0V			01
C0025	VC694800	Semiconductive Cera. Cap.	0.1000 25V Z			01
C0026	VC694800	Semiconductive Cera. Cap.	0.1000 25V Z			01
C0027	FG613100	Ceramic Capacitor-B	1000P 50V K			01
C0028	UJ866100	Electrolytic Cap.	1.00 50.0V			01
C0029	UJ838100	Electrolytic Cap.	100.00 16.0V			01
C0030	VC694800	Semiconductive Cera. Cap.	0.1000 25V Z			01
C0031	VC694800	Semiconductive Cera. Cap.	0.1000 25V Z			01
C0032	UJ838100	Electrolytic Cap.	100.00 16.0V			01
C0033	UJ866330	Electrolytic Cap.	3.30 50.0V			01
DB001	VK421800		D5SBA20 6.0A 200V			03
DB002	VQ111500	Diode Stack	D3SBA20-4103 4.0A			03
D0001	VB481900	Diode	11ES4			01
D0002	VB481900	Diode	11ES4			01
D0003	VB481900	Diode	11ES4			01
D0004	VB481900	Diode	11ES4			01
D0005	VB481900	Diode	11ES4			01
FUHOL	VP206500	Fuse Holder	EYF-52BC			01
F0001	KB003240		5.00A S			01
F0002	KB003240		5.00A S			01
F0003	KB003240		5.00A S			01
IC001	XQ437A00	IC	SI-3051N	REGULATOR +5V		03

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REFNO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
IC002	XQ667A00	IC	M5237L	REGULATOR		02
IC003	XJ602A00	IC	NJM78M12FA	REGULATOR +12V		02
IC004	XD343A00	IC	NJM79M12FA	REGULATOR -12V		03
IC005	XL972A00	IC	STK401-040	POWER AMP		08
J0003	VD041700	Jumper Wire	0.55			
J0004	VD041700	Jumper Wire	0.55			
RY001	VK881200	Relay	DC G5Z-2A-YA			04
R0003	HF756100	Carbon Resistor	1.0K 1/4 J			01
R0004	HF755220	Carbon Resistor	220.0 1/4 J			01
R0005	HF754560	Carbon Resistor	56.0 1/4 J			01
R0006	HF757100	Carbon Resistor	10.0K 1/4 J			01
R0007	HF756330	Carbon Resistor	3.3K 1/4 J			01
R0008	HW095100	Fuse Resistor	100.0 1/4 J			01
R0009	HW095100	Fuse Resistor	100.0 1/4 J			01
R0010	HF755560	Carbon Resistor	560.0 1/4 J			01
R0011	HF757100	Carbon Resistor	10.0K 1/4 J			01
R0012	HF755560	Carbon Resistor	560.0 1/4 J			01
R0013	HF757100	Carbon Resistor	10.0K 1/4 J			01
R0014	VC742500	Metal Oxide Film Resistor	10.0 1W J			01
R0015	HF757100	Carbon Resistor	10.0K 1/4 J			01
R0016	HF755560	Carbon Resistor	560.0 1/4 J			01
R0017	HF757100	Carbon Resistor	10.0K 1/4 J			01
R0018	HF755560	Carbon Resistor	560.0 1/4 J			01
R0019	HF757100	Carbon Resistor	10.0K 1/4 J			01
R0020	VC742500	Metal Oxide Film Resistor	10.0 1W J			01
R0021	HF757100	Carbon Resistor	10.0K 1/4 J			01
R0022	HF756330	Carbon Resistor	3.3K 1/4 J			01
R0023	HF756330	Carbon Resistor	3.3K 1/4 J			01
TR001	VJ828100	Transistor	2SA1451 O.Y			04
TR002	IC1815M0	Transistor	2SC1815 Y,GR			01
TR003	IC1815M0	Transistor	2SC1815 Y,GR			01
TR004	IC1815M0	Transistor	2SC1815 Y,GR			01
	VT360500	Circuit Board	MJ	(XQ652C0)		17
	VD041700	Jumper Wire	0.55			
CN001	VB390400	Connector Base Post	PH- 8P TE			01
CN002	VB390600	Connector Base Post	PH-10P TE			01
CN003	LB918050	Base Post Connector	XH 5P TE			01
CN004	VB390500	Connector Base Post	PH- 9P TE			03
CN005	VB390100	Connector Base Post	PH- 5P TE			01
CN006	LB932040	Base Post Connector	VH- 4P TE			01
CN007	LB918070	Base Post Connector	XH 7P TE			01
CN008	LB932020	Base Post Connector	VH- 2P TE			01
CN009	LB932020	Base Post Connector	VH- 2P TE			01
C0001	FG644100	Ceramic Capacitor-F	0.0100 50V Z			01
C0002	FG644100	Ceramic Capacitor-F	0.0100 50V Z			01
C0003	FG644100	Ceramic Capacitor-F	0.0100 50V Z			01
C0004	FG644100	Ceramic Capacitor-F	0.0100 50V Z			01
C0005	FG644100	Ceramic Capacitor-F	0.0100 50V Z			01
C0006	FG644100	Ceramic Capacitor-F	0.0100 50V Z			01
C0007	UN846470	Electrolytic Cap.-BP	4.70 25.0V			01
C0008	UN846470	Electrolytic Cap.-BP	4.70 25.0V			01
C0009	UN847470	Electrolytic Cap.-BP	47.00 25.0V			01
C0010	UN847470	Electrolytic Cap.-BP	47.00 25.0V			01
C0011	UN866100	Electrolytic Cap.-BP	1.00 50.0V			01
C0012	UN866100	Electrolytic Cap.-BP	1.00 50.0V			01
C0013	FG651470	Ceramic Capacitor-SL	47P 50V J			
C0014	FG651470	Ceramic Capacitor-SL	47P 50V J			
C0015	FG652100	Ceramic Capacitor-SL	100P 50V J			01
C0016	FG652100	Ceramic Capacitor-SL	100P 50V J			01
C0017	FG644100	Ceramic Capacitor-F	0.0100 50V Z			01
C0018	FG644100	Ceramic Capacitor-F	0.0100 50V Z			01
C0019	FG644100	Ceramic Capacitor-F	0.0100 50V Z			01
C0020	FG644100	Ceramic Capacitor-F	0.0100 50V Z			01
C0021	UN866330	Electrolytic Cap.-BP	3.30 50.0V			01
C0022	UN866330	Electrolytic Cap.-BP	3.30 50.0V			01
C0023	UN866220	Electrolytic Cap.-BP	2.20 50.0V			01
C0024	UN866220	Electrolytic Cap.-BP	2.20 50.0V			01
C0025	VE659000	Semiconductive Cera. Cap.	0.1000 25V Z			01
C0026	VE659000	Semiconductive Cera. Cap.	0.1000 25V Z			01

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REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
C0027	VE659000	Semiconductive Cera. Cap.	0.1000 25V Z			01
EMI01	VD542700	LC Filter	DSS306-93F223Z1			01
EMI02	VD542700	LC Filter	DSS306-93F223Z1			01
FL001	VB835000	Coil	FL5R200QNT			01
FL002	VB835000	Coil	FL5R200QNT			01
FL003	VB835000	Coil	FL5R200QNT			01
FL004	VB835000	Coil	FL5R200QNT			01
FL005	VB835000	Coil	FL5R200QNT			01
FL006	VB835000	Coil	FL5R200QNT			01
FL007	VB835000	Coil	FL5R200QNT			01
FL008	VB835000	Coil	FL5R200QNT			01
FL009	VB835000	Coil	FL5R200QNT			01
FL010	VB835000	Coil	FL5R200QNT			01
FL017	VB835000	Coil	FL5R200QNT			01
IC001	XB247A00	IC	UPC4570HA	OP AMP		01
IC002	XB247A00	IC	UPC4570HA	OP AMP		01
JK001	LB500520	DIN Connector	JACK 5P TCS4650-	MIDI IN		03
JK002	LB500520	DIN Connector	JACK 5P TCS4650-	MIDI OUT		03
JK003	LB500520	DIN Connector	JACK 5P TCS4650-	MIDI THRU		03
JK004	LB101870	Phone Jack	JACK YKB21-5006	FOOT CONTROLLER		03
JK005	VS056400	Phone Jack	JACK HLJ7101-01-	SOFT		01
JK006	VS056400	Phone Jack	JACK HLJ7101-01-	SOSTENUTO		01
JK007	VS056400	Phone Jack	JACK HLJ7101-01-	SUSTAIN		01
JK008	VS056400	Phone Jack	JACK HLJ7101-01-	OUTPUT L/MONO		01
JK009	VS056400	Phone Jack	JACK HLJ7101-01-	OUTPUT R		01
JK010	VS056400	Phone Jack	JACK HLJ7101-01-	INPUT L/MONO		01
JK011	VS056400	Phone Jack	JACK HLJ7101-01-	INPUT R		01
R0001	HF756270	Carbon Resistor	2.7K 1/4 J			01
R0002	HF755220	Carbon Resistor	220.0 1/4 J			01
R0003	HF756100	Carbon Resistor	1.0K 1/4 J			01
R0004	HF755680	Carbon Resistor	680.0 1/4 J			01
R0005	HF755680	Carbon Resistor	680.0 1/4 J			01
R0006	HF756680	Carbon Resistor	6.8K 1/4 J			01
R0007	HF756680	Carbon Resistor	6.8K 1/4 J			01
R0008	VC745800	Metal Oxide Film Resistor	220.0 1W J			01
R0009	VC745800	Metal Oxide Film Resistor	220.0 1W J			01
R0010	HF757180	Carbon Resistor	18.0K 1/4 J			01
R0011	HF757180	Carbon Resistor	18.0K 1/4 J			01
R0012	HF757220	Carbon Resistor	22.0K 1/4 J			01
R0013	HF757220	Carbon Resistor	22.0K 1/4 J			01
R0014	HF758100	Carbon Resistor	100.0K 1/4 J			01
R0015	HF758100	Carbon Resistor	100.0K 1/4 J			01
R0016	HF757560	Carbon Resistor	56.0K 1/4 J			01
R0017	HF757560	Carbon Resistor	56.0K 1/4 J			01
R0018	HF757150	Carbon Resistor	15.0K 1/4 J			01
R0019	HF757150	Carbon Resistor	15.0K 1/4 J			01
R0020	HF757100	Carbon Resistor	10.0K 1/4 J			01
R0021	HF757100	Carbon Resistor	10.0K 1/4 J			01
R0022	HF755100	Carbon Resistor	100.0 1/4 J			01
R0023	HF755100	Carbon Resistor	100.0 1/4 J			01
R0024	HF757220	Carbon Resistor	22.0K 1/4 J			01
R0025	HF757220	Carbon Resistor	22.0K 1/4 J			01
R0026	HF757150	Carbon Resistor	15.0K 1/4 J			01
R0027	HF757150	Carbon Resistor	15.0K 1/4 J			01
R0028	HF754470	Carbon Resistor	47.0 1/4 J			01
SBT01	VF456600	Coil	SBT-0180W			03
SBT02	VF456600	Coil	SBT-0180W			03
SBT03	VF456600	Coil	SBT-0180W			03
SBT04	VF456600	Coil	SBT-0180W			03
SBT05	VF456600	Coil	SBT-0180W			03
SBT06	VF456600	Coil	SBT-0180W			03
SBT07	VF456600	Coil	SBT-0180W			03
SW001	VS591300	Slide Switch	SSSF12471A	SPEAKER ON/OFF		02
	VT360000	Circuit Board	PN1	(XQ653C0)		11
	VT360100	Circuit Board	PN2	(XQ653C0)		10
	VT360200	Circuit Board	PN3	(XQ653C0)		09
	VT360300	Circuit Board	PN4	(XQ653C0)		09
	VD041700	Jumper Wire	0.55			
CN001	VB389600	Connector Base Post	PH-11P SE			01

*: New Parts

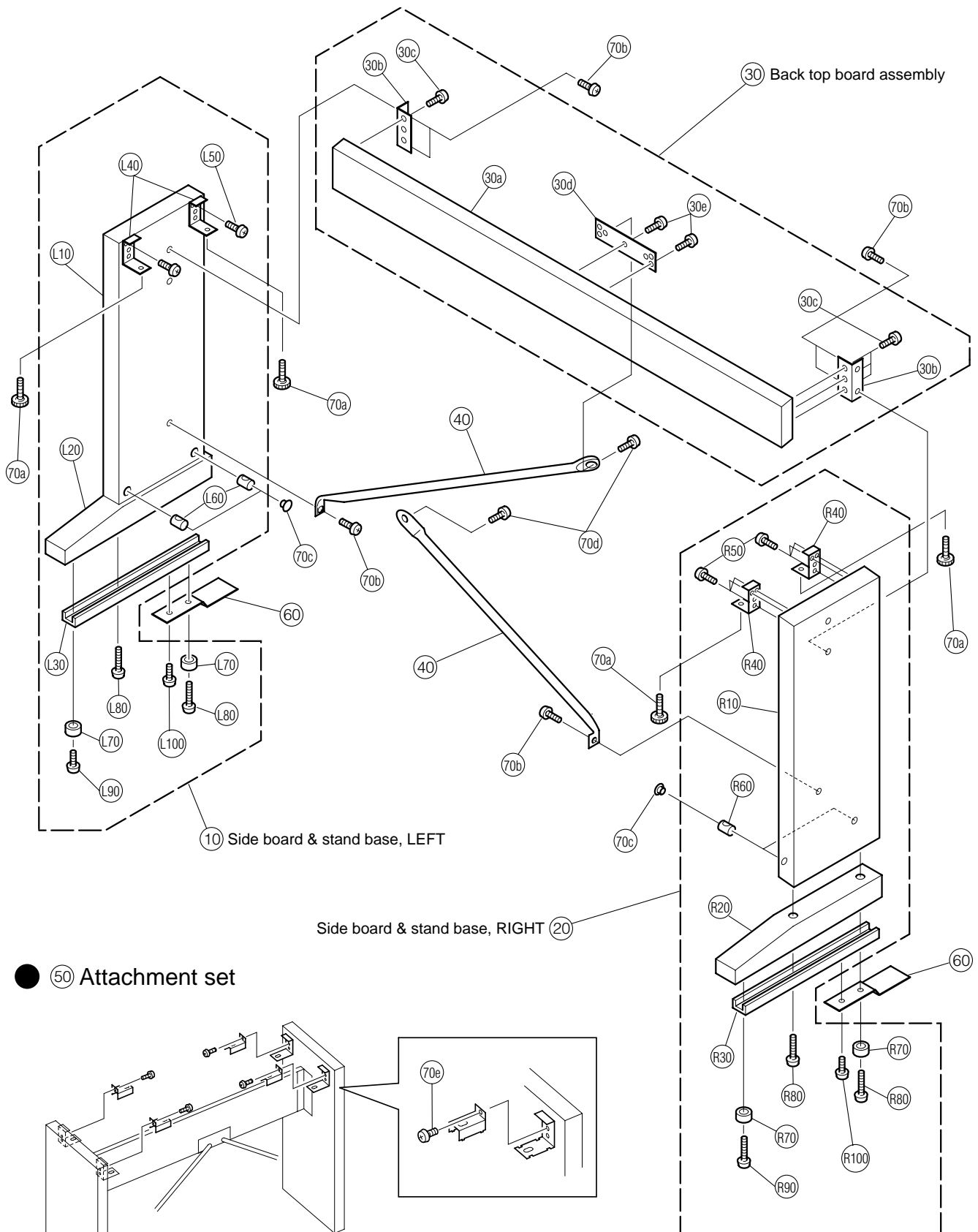
RANK:Japan only

REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
CN002	VC166500	Connector Base Post	PH-12P SE			01
CN021	VK015400	Connector Base Post	PH-13P SE			01
CN022	VB858200	Connector Base Post	PH- 3P SE			01
CN031	LB919040	Base Post Connector	XH 4P SE			01
CN032	LB919050	Base Post Connector	XH 5P SE			01
CN041	VB858500	Connector Base Post	PH- 6P SE			01
D0001	VB941200	Diode	1SS133,1SS176			01
D0002	VB941200	Diode	1SS133,1SS176			01
D0003	VB941200	Diode	1SS133,1SS176			01
D0004	VB941200	Diode	1SS133,1SS176			01
D0005	VB941200	Diode	1SS133,1SS176			01
D0006	VB941200	Diode	1SS133,1SS176			01
D0007	VB941200	Diode	1SS133,1SS176			01
D0008	VB941200	Diode	1SS133,1SS176			01
D0009	VB941200	Diode	1SS133,1SS176			01
D0010	VB941200	Diode	1SS133,1SS176			01
D0011	VB941200	Diode	1SS133,1SS176			01
D0012	VB941200	Diode	1SS133,1SS176			01
D0013	VB941200	Diode	1SS133,1SS176			01
D0014	VB941200	Diode	1SS133,1SS176			01
D0015	VB941200	Diode	1SS133,1SS176			01
D0016	VB941200	Diode	1SS133,1SS176			01
D0017	VB941200	Diode	1SS133,1SS176			01
D0018	VB941200	Diode	1SS133,1SS176			01
D0019	VB941200	Diode	1SS133,1SS176			01
D0050	VB941200	Diode	1SS133,1SS176			01
D0051	VB941200	Diode	1SS133,1SS176			01
D0052	VB941200	Diode	1SS133,1SS176			01
D0054	VB941200	Diode	1SS133,1SS176			01
D0055	VB941200	Diode	1SS133,1SS176			01
LED01	VD180000	LED	SLZ-190B-03 RE	1		01
LED02	VD180000	LED	SLZ-190B-03 RE	2		01
LED03	VD180000	LED	SLZ-190B-03 RE	3		01
LED04	VD180000	LED	SLZ-190B-03 RE	4		01
LED05	VD180000	LED	SLZ-190B-03 RE	5		01
LED06	VD180000	LED	SLZ-190B-03 RE	6		01
LED07	VD180000	LED	SLZ-190B-03 RE	7		01
LED08	VD180000	LED	SLZ-190B-03 RE	8		01
LED09	VD180000	LED	SLZ-190B-03 RE	9		01
LED10	VD180000	LED	SLZ-190B-03 RE	10		01
LED11	VD180000	LED	SLZ-190B-03 RE	11		01
LED12	VD180000	LED	SLZ-190B-03 RE	12		01
LED13	VD180000	LED	SLZ-190B-03 RE	VOICE		01
LED14	VD180000	LED	SLZ-190B-03 RE	PERF.A		01
LED15	VD180000	LED	SLZ-190B-03 RE	PERF.B		01
LED16	VD180000	LED	SLZ-190B-03 RE	STORE		01
LED17	VD180000	LED	SLZ-190B-03 RE	EDIT		01
LED18	VD180000	LED	SLZ-190B-03 RE	ROOM		01
LED19	VD180000	LED	SLZ-190B-03 RE	STAGE		01
LED20	VD180000	LED	SLZ-190B-03 RE	HALL		01
LED21	VD180000	LED	SLZ-190B-03 RE	CHORUS		01
LED22	VD180000	LED	SLZ-190B-03 RE	SYMPHONIC		01
LED23	VD180000	LED	SLZ-190B-03 RE	TREMOLO		01
LED50	VD180000	LED	SLZ-190B-03 RE	PS2		01
LED51	VD180000	LED	SLZ-190B-03 RE	SPLIT		01
LED52	VD180000	LED	SLZ-190B-03 RE	TRANSPOSE		01
R0021	HF757470	Carbon Resistor	47.0K 1/4 J	MIDI		01
R0022	VD041700	Jumper Wire	0.55			
SW001	KA906550	Push Switch	KEC10901	1		02
SW002	KA906550	Push Switch	KEC10901	2		02
SW003	KA906550	Push Switch	KEC10901	3		02
SW004	KA906550	Push Switch	KEC10901	4		02
SW005	KA906550	Push Switch	KEC10901	5		02
SW006	KA906550	Push Switch	KEC10901	6		02
SW007	KA906550	Push Switch	KEC10901	7		02
SW008	KA906550	Push Switch	KEC10901	8		02
SW009	KA906550	Push Switch	KEC10901	9		02
SW010	KA906550	Push Switch	KEC10901	10		02
SW011	KA906550	Push Switch	KEC10901	11		02
SW012	KA906550	Push Switch	KEC10901	12		02

*: New Parts

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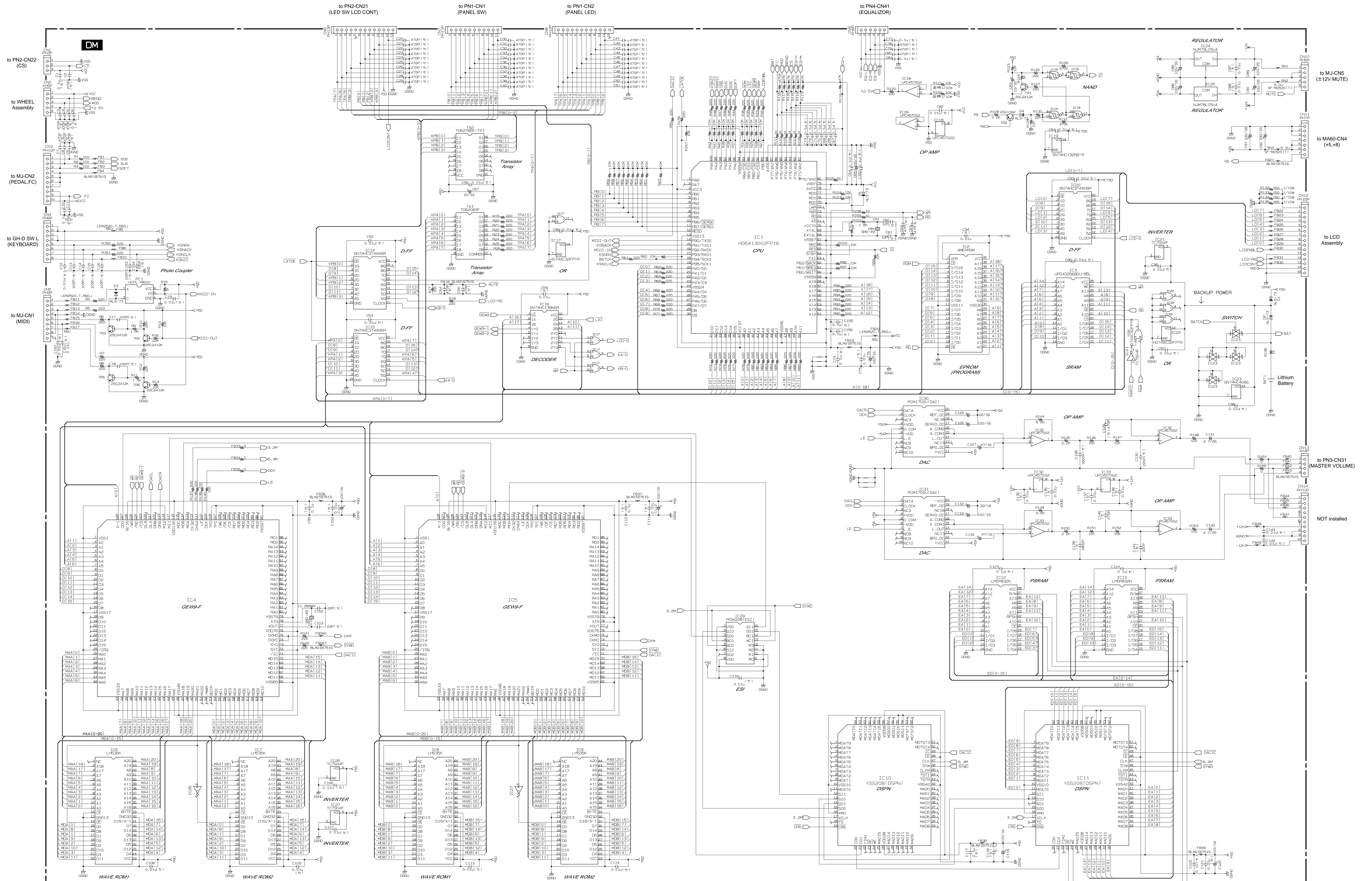
KEYBOARD STAND LP-3 (Option)



REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
	---	OVERALL ASSEMBLY	LP-3 J	LP-3 (VS64530)		
10	---	OVERALL ASSEMBLY	LP-3 UL	LP-3 (VS67110)		
20	---	Side Board & Stand Base	LEFT	(VS64550)		
30	---	Side Board & Stand Base	RIGHT	(VS64560)		
30	VN942600	Back Top Board Assembly				11
30a	---	Back Top Board		(VN94240)		
30b	VN944300	Holder			2	05
30c	EP030250	Bind Head Tapping Screw-1	3.5 x 14 MFZN2BL		6	01
30d	VP247700	Angle Bracket				07
30e	EM040190	Flat Head Tapping Screw-1	4.0 x 16 MFZN2BL		5	01
40	VN944200	Stay			2	10
50	---	Attachment Set		(VS67420)		
60	VI282200	Back Toe		U (VS64540)	2	04
70	---	Screw Set				
70a	VS645700	Knob Bolt	6.0 x 40		4	02
70b	EX001150	Pan Head Screw	SP 6.0 x 30 MFZN2BL	(V378442)	6	
70c	VJ009300	Cap			4	01
70d	VP158700	Pan Head Screw	SW 6.0 x 16 MFZN2BL		2	01
70e	EG340360	Bind Head Screw	4.0 x 8 MFZN2BL		4	01
L10	---	Side Board & Stand Base	LEFT	LP-3 (VS64550)		
L20	VS646300	Side Board Assembly	LEFT			12
L30	VN104300	Stand Base	BL			07
L40	VI009900	Angle Bracket				03
L50	VS646100	Stand Holder			2	07
L60	EM030180	Flat Head Tapping Screw-1	3.5 x 20 MFZN2BL		6	01
L70	ET400070	Joint Connector	6.0 x 13MFZN2BL		2	01
L80	VI235200	Foot			2	01
L90	VF778300	Bolt	A 6.0 x 70 MFZN2BL		2	01
L100	VI290400	Truss Head Tapping Screw-2	6.0 x 16 MFZN2BL			01
L100	VN415900	Bind Head Tapping Screw-S	PW 4.0 x 14 MFZN2BL			01
R10	---	Side Board & Stand Base	RIGHT	LP-3 (VS64560)		
R20	VS646400	Side Board Assembly	RIGHT			12
R30	VN104300	Stand Base	BL			07
R40	VI009900	Angle Bracket				03
R50	VS646100	Stand Holder			2	07
R60	EM030180	Flat Head Tapping Screw-1	3.5 x 20 MFZN2BL		6	01
R70	ET400070	Joint Connector	6.0 x 13MFZN2BL		2	01
R80	VI235200	Foot			2	01
R90	VF778300	Bolt	A 6.0 x 70 MFZN2BL		2	01
R100	VI290400	Truss Head Tapping Screw-2	6.0 x 16 MFZN2BL			01
R100	VN415900	Bind Head Tapping Screw-S	PW 4.0 x 14 MFZN2BL			01

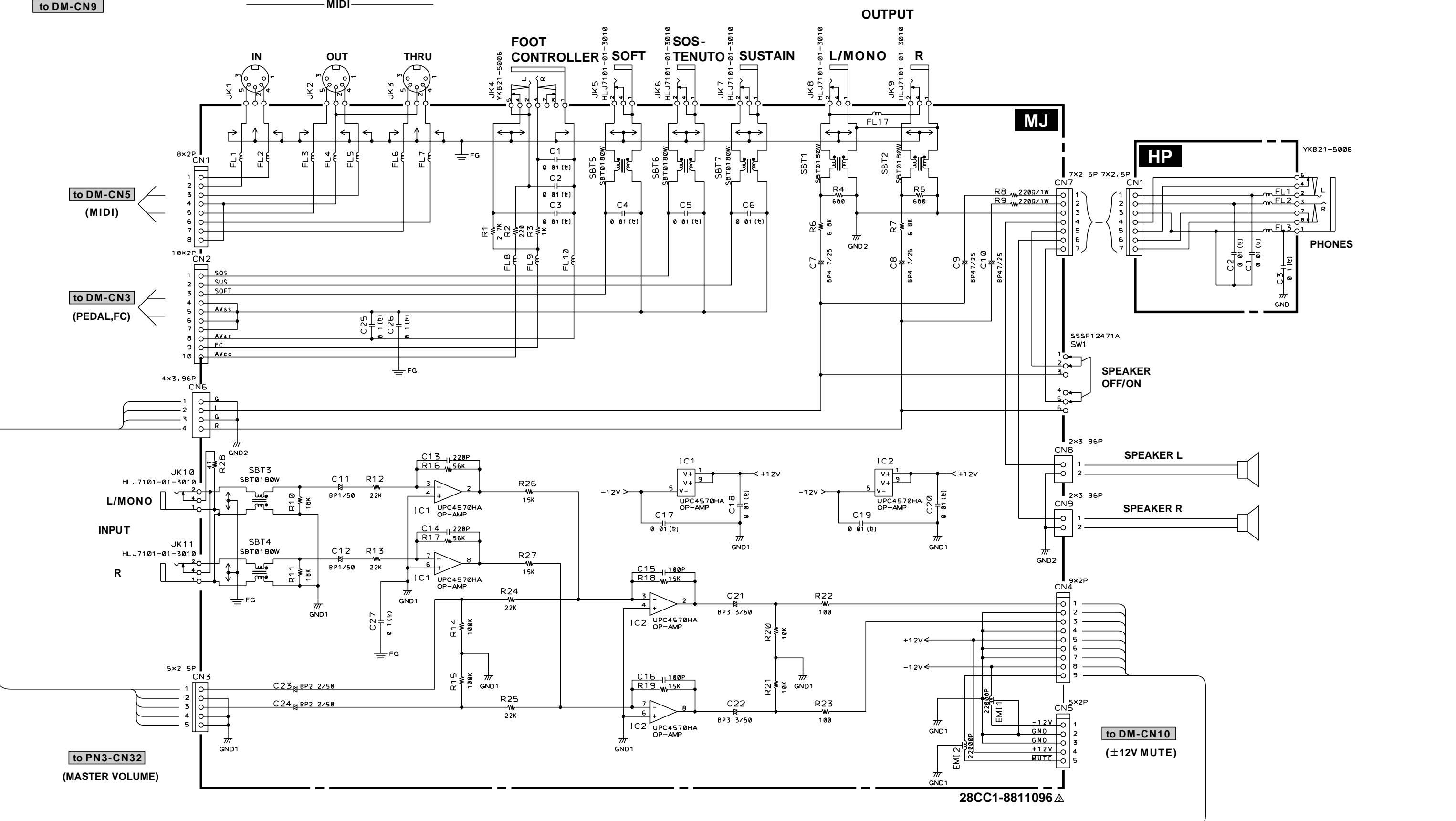
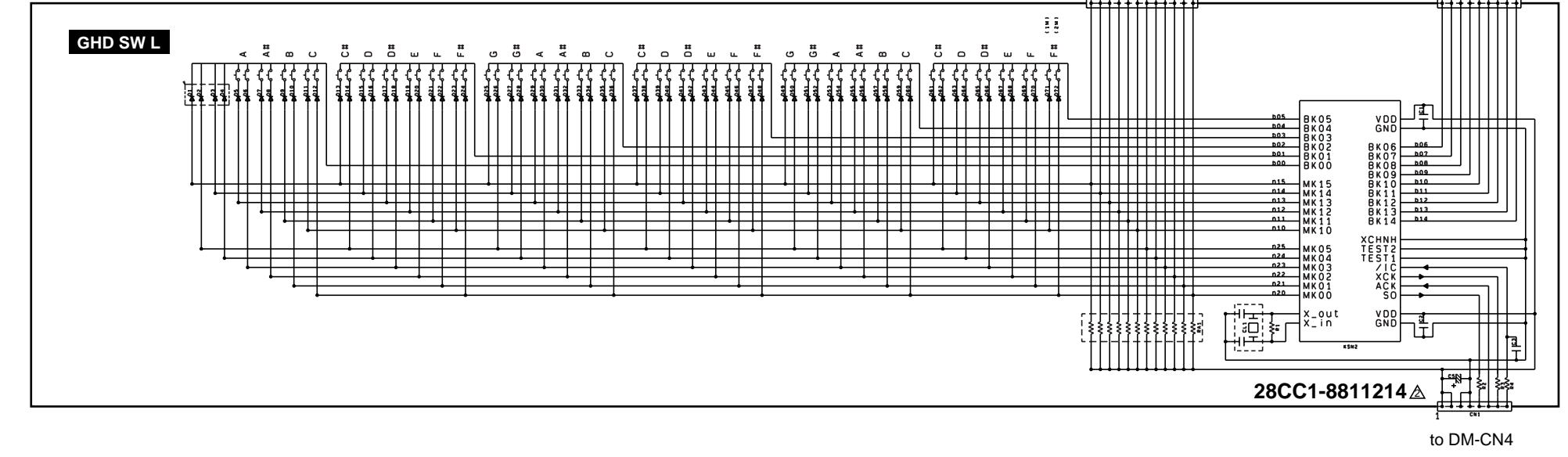
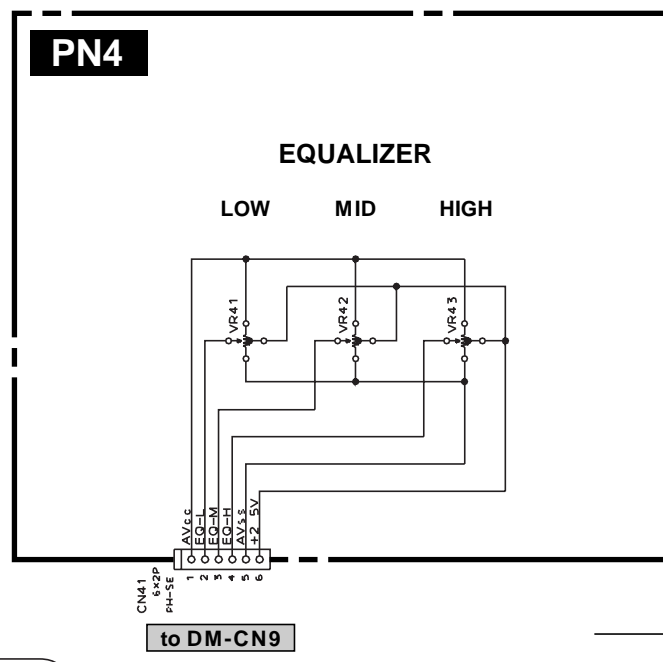
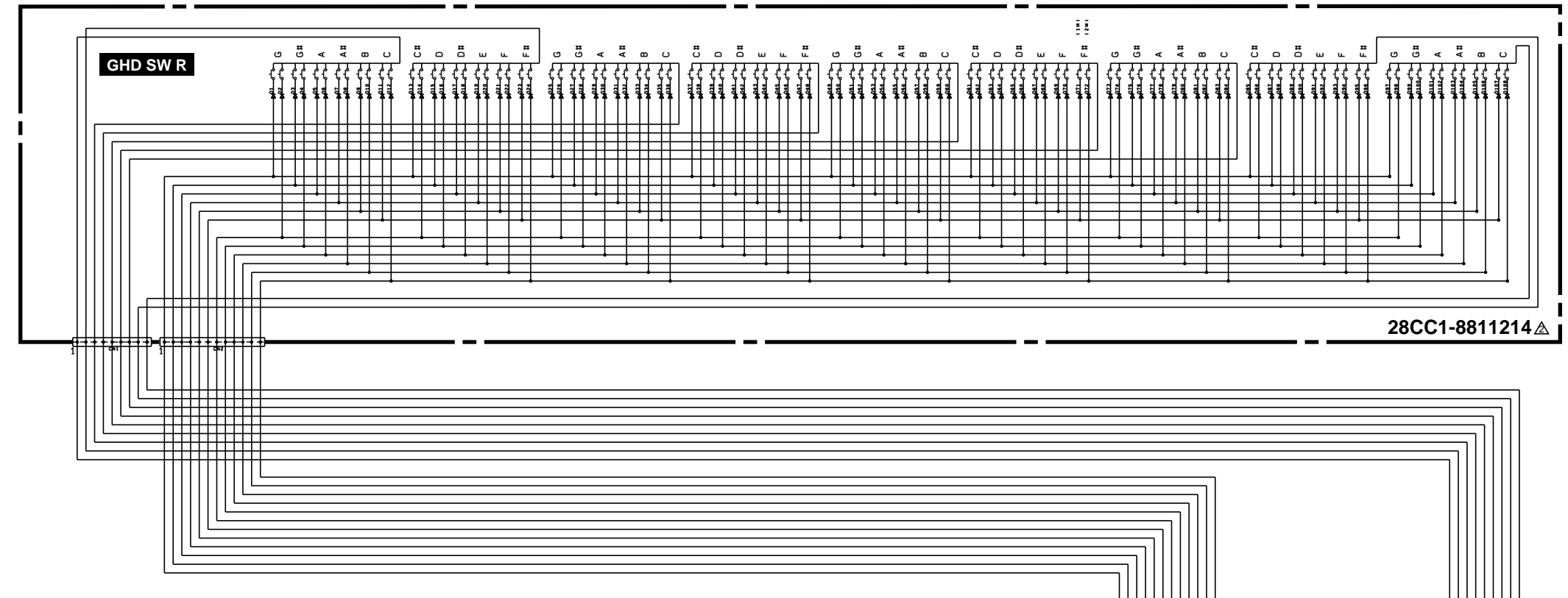
*: New Parts

RANK:Japan only



Note : See parts list for details of circuit board component parts.

28CC1-8812238




X1	J	U	EGBR
F1	3A	3A	T 1 6A L
L1	SU10VD	SU10VD	SU10VD
C1	0.01uF	0.01uF/125V	0.01uF/400V
C2, C3	0.0047uF	0.0047uF/125V	0.0047uF/400V

28CB1-8811075 Δ

U	E	N

XQ430, XR749 XQ431, XR750 XQ432, XR751
J: (GA60 X Q429, XR748)

Note : See parts list for details of circuit board component parts.

■ TO SERVICE PERSONNEL
Critical Components Information
Components having special characteristics are marked  and must be replaced with parts having specifications equal to those originally installed.

